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East Europe Report

ECONOMIC AND INDUSTRIAL AFFAIRS

No. 2200

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CZECHOSLOVAKIA

KHOZRASCHET IMPLEMENTATION IN ENTERPRISES VIEWED

Blazej Comment

Prague HOSPODARSKE NOVINY in Czech 25 Sep 81 p 8

[Article by Eng Karel Blazej, Avia Praha: "The Transferral of Indicators to the Lowest Elements"]

[Text] The first step for us in improving the internal enterprise management system was the implementation of organizational and methodological suggestions which had been announced at the enterprise in the form of the Regulations for Internal Enterprise Management. The regulations which have been implemented have been divided into a part governing relations between the enterprise and factories (the Regulations of Internal Enterprise Management) and a part modifying economic management within the factory (the Basic Factory Regulations). These factory regulations draw from the main principles of planned management, organizational issues, the system of indicators and economic instruments, material incentives, accounting principles, the formation and utilization of prices within the factory, and the method for decisionmaking regarding internal enterprise disputes.

These regulations were issued in the first quarter of this year, and it is expected that within a year they will be supplemented, both through extension based on the experiences gained by the factory from their application during this year, and through sections which have yet to be formulated at all, but which are especially significant within the improved planned management system; these will amount to additional chapters modifying the activity of the sectors involved in technical development, technical preparations for production and in quality control. We are aware that the formulation of management regulations, even the very best, does not in and of itself guarantee the needed quality of management. Therefore, instructional sessions and discussions are currently being organized on economic themes. So far they have taken place on the theme of cost planning, finance, and counterplanning. A future topic is to be material incentives.

The Stages of Budgets

There has not yet been sufficient experience with longer range planning. Practice has shown that there are great differences between a 5-year target and its implementation to annual plans. The extension of the planning horizon to 5 years will represent a clear contribution, insofar as deviations in annual plan breakdowns from 5-year tasks will be minimized. This should also eliminate the uncertainty which now exists in matters related to the concrete tasks of the annual implementation plan. To be specific, the enterprise receives the breakdown for this plan right before the end of the current year, or even at the beginning of the next. To begin the assigned tasks at the lower organizational units only after this date would make it impossible to put together budgets for the first quarter of the current year on time, thus ruling out the possibility of managing by budget, which is one of the basic principles of khozraschet.

For this reason, we implement budget formation in three stages. As a rule we begin the first stage in the spring (from March to May), that is, even before the breakdown of directives for putting together a plan proposal. At this stage, we can only guess at the tasks for the next year, however, the supply division is already at this time loudly requesting at least rough data for the negotiation of deliveries for the next year, thus it is necessary to proceed in this fashion. It is likewise necessary during this period to discuss within the enterprise at least basic internal enterprise deliveries. In addition, the comprehensive socialist rationalization division requests an orientation for its activities for the upcoming year. Given a lack if knowledge concerning the medium-term plan there is no alternative but to break down the tasks by specific management centers after open consideration and, as a rule, with a view toward known development to date.

In the area of the labor and financial plans, the breakdown is restricted to selected indicators (numbers of employees, aggregate wages payable, overall costs without unit material costs, which cannot be determined without more precise knowledge of the production plan). This year, the breakdown of indicators was supplemented by a percentage of the overall cost limits for materials and other costs, without depreciation of capital assets (basically materials overhead); in this way, costs are focused with a view to the critical enterprise indicator of adjusted value added.

All the management centers put together their budgets for next year, divided into quarters, on the basis of this breakdown. They supplement these budgets with comments, from which it is clear to the division supervising this breakdown (technical and economic planning), where and in which elements bottlenecks may arise. An aggregation of these budgets is usually put together at the time when the factory is already processing the plan proposal for the next year on the basis of the breakdown derived from the task allotted to the enterprise by the supervisory VHJ [economic production unit].

In this manner, information concerning the expected structure of costs reaches the factory and also the enterprise planner from individual internal enterprise divisions at an appropriate time. At the same time, he is informed as to why a center is requesting more resources than during the preceding period. He then compares these demands with the extraordinary costs of the previous period, which were the basis for the breakdown, and after auditing them he arrives at a more realistic view of the requirements of the next year.

The second stage in formulating a budget and making it more precise falls in September, and sometimes October when, after the formulation of a plan for labor and for costs for the factory and enterprise, and occasionally after the discussion of the plan proposal with the supervisory organization, there is refinement of the breakdown by the management center. This breakdown is much more detailed in comparison with that of the previous stage and possesses, in the area of primary costs and revenues, a link to the factory plan for costs. The management centers refine their budgets for the following year on the basis of this breakdown. The budget for the first quarter is then binding, and at the same time also becomes the basis of evaluation for purposes of material incentives.

The budgets of the centers receive their final form during the first quarter of the current year. They change with regard to thd definitive implementation plan, and on occasion also with regard to new realities, but only during the second through the fourth quarters. Additional modifications are then possible only in the form of a change in the plan. The above three-phase method for formulating the budgets of centers has already been applied at our enterprise for a long time. Only the structure of the broken down elements is subject to change, with regard to new plan requirements or accounting practices. It is clear that more timely knowledge of the material components of the plan would contribute to an increase in the quality of this process. Such timely knowledge is expected from the greater emphasis being placed on the importance of the five-year plans.

The Fixed and Variable Component of Overhead

This year, in addition to the above-mentioned supplementing of the cost breakdown in the first stage of budget formation with a percentage of total costs represented by materials cost, two other measures were also taken, both directly related to recommendations deriving from the Set of Measures. These were the division of overhead into fixed and variable components, and the transferral of the indicator of adjusted production costs to the management centers.

The first measure, i.e., the differentiation between fixed and variable components of overhead, derives from the criticism of the existing method for calculating the economic (khozraschet) performance of a center, in which the most fundamental component of revenues is the product of unit wages (in the basic norm) and planned overhead (taken from the budget). This widely applied method improperly rewards those centers which exceed the budget for wages and also aggregate into revenues a percentage of fixed overhead, in which there has been for practical purposes no increase (or at least not nearly to the same extent); on the other hand, when the allotted wages payable are not fulfilled, then the consequences of this fact are improperly intensified.

The new approach provides that fixed overhead constitutes a steady element in the revenues of economic production centers independent of the actual development of allotted wages. The relationship of the variable component of overhead is expressed by an established ratio of variable overhead to allotted wages.

A well-known difficulty in the resolution of this problem is the determination of the fixed and variable share of center overhead. In our case, we have used the most simple approach, i.e., an estimate, conducted in conjunction with economists from individual centers and employees of the division of internal enterprise planning. It will be necessary to wait, however, at least until the beginning of next year, i.e., until the closing of accounting results for 1981, for a verification of the results of this method.

Monitoring Performance

If there exist at least theoretically elaborated guidelines for the approach just described, then for the transferral of adjusted value added described below it has been necessary to resolve all issues almost from scratch and the solution that has been implemented must be considered as a method that has still not been fully verified. We have proceeded from an analysis of the individual components of adjusted value added, which may be evaluated as follows, after a certain amount of simplification: depreciation of capital assets, financial and other costs, profits and wages.

From the viewpoint of exerting an influence on these individual components, basically only wages are important for the economic production center, and if they are to express the performance of the center, then only unit wages are of interest. The influence of production operations (at least in the organizational setup of the factory, which is what we are dealing with) on the amount of capital asset depreciation is almost negligible. The interest in profit is conditioned by the establishment and control of the cost budget.

We budget and account for profit almost exclusively by implementational center (with) the exception of the factory food service and certain of the less important economic centers from the viewpoint of overall profits). It is my opinion that it is inefficient to apportion realized profit to production centers during the determination of center performance, even though I acknowledge some reservations about the methodology of our resolution. Likewise, financial costs are not directly related to the performance of the production center or, more precisely stated, such a relationship may only be demonstrated with difficulty.

For the above reasons, we measure center performance (which is the term replacing the concept of adjusted value added in our internal enterprise management) with the assistance of wages at a basic calculation level with standards valid for a year. In the practice of our factory, this amounts to a part of the internal factory transfer prices, which are composed of unit material and unit wage costs, and which also are valid for a year. They serve to recapture transfers of unfinished output among centers.

In order to emphasize the interest of a production center above all in this kind of performance, which constitutes the basis of the production plan and, furthermore, in order to objectivize this assignment we incorporate into the calculations of center performance, for the purposes of material incentives, only those wages which are based on technicomanagerial standards (i.e., in no case, for instance, do we consider elements for which the wage component is determined on a case-by-case basis, or instances dealing with one-time wages and those wages determined with less precision).

Clearly, the establishment of such assignments demands ever more detailed planning, i.e., basically the operative planning or production, which must be very tightly linked to the technicomanagerial plan of the factory. And this is one of the important, and not completely proven preconditions for the successful transferral of the adjusted value added indicator from a higher organizational level (the enterprise, the factory) to a lower level (operations).

Concrete experience has shown how great the biasing influence can be a different method of rounding off during the establishment of the plan and the documenting of reality. For instance, during an experimental evaluation for the first quarter of this year, very favorable performance was discovered at one of the operations which otherwise possessed a number of shortcomings in terms of the completeness and timeliness of intercenter deliveries of semifinished products. A study showed that the program for calculating the plan of the center included rounding off to the nearest 100 korunas, and therefore did not aggregate into its calculations those elements which represented 49.9 percent or less of a 100 koruna unit. In comparison, accounting results worked out to the koruna showed the fulfillment even of these smaller elements. And because the production of just such semifinished goods is important for operations, the performance had been biased in its favor.

It is likewise necessary to limit very precisely the range of monitored production elements in such a way that only comparable values are actually compared. In practice, this means that the product structure of the output of the centers must be determined both in the plan (by the number of a drawing or by some other code indicator) and in reality (by calculational or order numbers). The implementation of center outputs in practice has also helped in uncovering certain organizational shortcomings and faults in the circulation of documentation. (For instance, the time differential between documents submitted for the calculation of wages and documents attesting to the completion of the production of individual operations. Deviations appear in both directions).

If, however, the output of centers is becoming the basis for material incentives (for instance, as a component of premium schedules), then this is also developing direct pressure for the elimination of shortcomings that were previously tolerated or overlooked. And this, to be sure, is a major objective of the Set of Measures, because its significance does not lie solely in the introduction of new indicators, but precisely in the requirement to raise the quality of work at all levels and in all areas. This also applies to the supreme indicator, the return on production assets.

We are attempting to incorporate this indicator at lower organizational levels by transferring to them the responsibility for the upholding and, in some instances, the fulfillment of the three limiting basic components of this indicator (profit, inventories, capital assets). At the same time, it is clear that success will only result from a comprehensive understanding and assurance of this indicator, beginning with production tasks, extending through marketing to financial management, including efficiently organized preproduction stages, supply and overall organization.

Dlouhy Comment

Prague HOSPODARSKE NOVINY in Czech 25 Sep 81 p 9

[Article by Eng Miroslav Dlouhy, enterprise director, Kladno-Poldi: "Integrated Plans for Supply and Production"]

[Text] We have devoted a great deal of attention to the formation of principles for internal enterprise management regulations. We have established relatively rigorous criteria which differentiate in a fundamental manner the links between wage regulation and material incentives in this five-year plan from the earlier approach. Performance in the first quarter and in the first 2 months of the second quarter have pointed to the justifiability of this rigorous system. Basically, to be specific, we have been able to fulfill relatively evenly plan targets for the production of goods, and for gross output, but we have had problems with fulfilling orders according to the mix requested.

Throughout the entire period of national economic development we have been witnesses to the fact that certain specifications for metallurgical production have had to be respected in the instruments and forms of management. It is a question of a sector extraordinarily demanding of energy, raw materials, and imports (well above the average for the national economy), and for this reason each more precise evaluation of its inputs is even more welcome. It is necessary, however, to be aware that metallurgical materials may be valued as final products, i.e., machinery, construction, and the like.

Enterprises themselves may not determine metallurgical output, but must reflect the requirements of the national economy (even though they must be actively influenced by material innovation, by the application of findings of materials research, etc.).

This aspect receives much greater consideration at our operation than at other metallurgical enterprises. On an annual basis, we fill about 180,000 orders for 400 different brands of steel and for tens of thousands of dimensioned and shaped projects (our set of planned calculations contains 80,000 elements). And insofar as our production program includes a broad range of products with kilogram prices of Kcs 2 to 300 (that is from common carbon steels to state-of-the-art tool steels and alloys), it is clear that the mix plays a basic and, according to our experience, at times even a decisive role in the fulfillment of plan indicators.

Paths of Solution

Certain findings from the implementation of new management instruments correspond to our expectations that when establishing a plan for a metallurgical enterprise standards should be utilized (norms, prices, calculations) which reflect the assigned product mix requirements. We have begun to regulate wages according to units of labor intensiveness in order to comply with the above link, but likewise so that we may be able to determine correctly the labor intensiveness and difficulty of production.

We have compared, then, the plan with the reality of the production of goods, in terms of wages per unit of goods produced (for a specific division and at times a specific quality or product). A more labor-intensive product mix has increased the usable volume of wages payable, while a less labor-intensive mix has reduced the possibility for drawing down wages (always in comparison with wages actually paid).

The advantage to implementing units of labor intensiveness has been, in particular, the possibility for evaluating more objectively the influence of product mix on the development of wages. The disadvantage has been that units of labor-intensiveness have not been sufficiently sensitive to savings in materials costs. A significant portion of the enterprise's employees, however, have been given incentives linked to this indicator.

Prior to the implementation of the principles of the Set of Measures, we had wanted to define the necessary managerial links of enterprise and internal enterprise management in such a way that all instruments would support the position of metallurgical production and not create antagonisms and potential problems in supplier-consumer relations. We found ourselves, then, in October of last year, faced with the problem of how to incorporate the adjusted value added indicator in the links between all the instruments of internal enterprise management at the level of internal enterprise units and divisions.

Basically, we had three possible paths for a solution. These were based, first of all, on the refinement of internal enterprise khozraschet not only at the production managing transportation centers, but also at the economic centers for commercial, supplying, and administrative activities. Secondly, we proceeded from the necessity for assuring a link between enterprise indicators and those of the internal enterprise divisions. It was a matter of preventing a situation where the internal enterprise divisions would fulfill the plan in terms of their own indicators, even while the enterprise as a whole would not. And our third motive was the conviction that the plan would place substantial emphasis on an accounting system which would lead to a proportional, integrated plan. We have assumed, primarily, links between the portions of the plans covering sales, production, material and technical supply, on the one hand, and financial plan indicators, on the other.

Under conditions of a diverse product mix with significantly differing levels of return, from basic products produced at a loss to highly profitable products from specialized, tool, and especially high-speed steels, the integration of the plan of material and technical supply with the plan of production becomes all the more important. And the financial plan presumes no influence from the product mix, which would mean the calculation of profitability and economic performance from the content of orders for material and technical supply, according to resources.

Three Factors

For these reasons we understood unambiguously the close connection between the adjusted value added indicator and the profitability of individual orders, materials costs, and the occurrence of unplanned elements. The makeup of orders for metallurgical enterprises, as an initial factor, is not incorporated into the financial plan in the sense that the plan of economic performance of the metallurgical complex is determined by the content of the received orders. The starting point is always the reality of the previous period. Therefore, in order to fulfill the plan it is desirable in every instance that the product mix not be worsened.

For us this means the upholding of the volume of spdcialized steels, tool and high-speed steels, and steels with higher use values, and therefore with a higher price and profitability. This requirement means, however, also the assurance of the requisite alloying additives, and here is where problems arise. The plan is not completely in balance, the product mix often deviates from the plan due to the complexity of the links in material and technical supply, resources for the purchase of the alloying additives are made available at a late date, or we must assure them with loans from material reserves, etc., all of which means a worsening of efficiency as a unit.

A second factor is the amount of materials costs, and if one leaves out product mix, then this is completely influenced by the in-house activities of enterprise divisions and production units. Fulfillment of technicomanagerial norms for prefinishing weights, energy consumption, and quality indicators is the responsibility of the internal enterprise divisions.

The third factor: the unplanned-for elements of financial outlays. It is in this area that we have so far experienced a single, basic problem, in relation to contract penalties. Reductions must be made by fundamentally improved organizational work. For this reason, we have modified the internal enterprise management regulations along these lines. We are simultaneously preparing to implement computer technology in the handling of orders. Nevertheless we will not be able to eliminate completely the contract penalty. The complexity of material and technical supply and of technology, changes in the assurance of production programs, the necessity for replacing one material with another, and the like, always result in a certain amount of underfulfillment of the product mix. It would also help if production facilities were not allocated on customer vouchers at a 100 percent level, and if a reserve capacity of 4 to 5 percent were maintained.

From this it follows that the adjusted value added indicator is product-mix sensitive, and therefore also to the refinement of ties between the plan and its external inputs. This is striking in the area of supply. For a metallurgical enterprise, however, the product mix, which is supposed to correspond to needs, can bear a diametrically opposed relation to the potentials for supply. Failure to fulfill deliveries in terms of brand, and instability in the conditions for material and technical supply then exert a negative influence on unplanned financial outlays.

We have undertaken simulations of the affect of these factors on value added performance for the second half of last year. And we faced the decision of which indicators to introduce into the internal enterprise divisions. We concluded that due to the sensitivity of adjusted value added, which is so marked for the fulfillment of deliveries based on product mix, it would also be effective to use this indicator for internal enterprise management.

We therefore constructed a model of internal enterprise management in which the adjusted value added indicator is applied in the khozraschet of internal enterprise divisions. It is set up as the factory indicator for production units of a major production activity, and as an enterprise indicator for service units and centers of enterprise management. At the same time we established this indicator as the major one for the personal material incentive system for technicomanagerial employees. In this way, we wanted to avoid a situation in which plan fulfillment by the enterprise would not permit the payment of bonuses, even though rights to the bonuses may have arisen within the internal enterprise divisions.

Wage Regulation

The decisive indicator for the basic component of wages is that of value added, for the incentive component it is the planned economic performance indicator, and in steel plants and service factories it is overall costs. The production of coke and of processed, rolled material are the conditioning indicators.

The material incentive system has prompted some fundamental changes. In the first place, the percentage of workers who receive bonuses for meeting quality and efficiency indicators (from technicomanagerial standards to production costs) has increased. While in 1980, 24.86 percent of employees were rewarded for quality and 15.88 percent for efficiency, in 1981 these percentages amount to 41.21 and 30.84 respectively. An additional element has been the determination of two monthly indicators for the granting of bonsues to technicomanagerial employees (one is sales, which is conditioned by equity, and the other is value added), and a quarterly indicator directed at frugality and quality (it varies according to activity).

The area of labor plan formation is also a component of the internal enterprise system of wage regulation. Concretely, this means managing the number of employees by the plan, increasing the efficiency of wages, counterplanning, and the evaluation of the development of wages payable.

The employee limit is broken down into numbers of individuals, and divided further into workers and technicomanagerial employees. At the same time, limits are also defined both for undesirable fluctuations and unexcused absences, which are determined for individual factories at the same time that material incentives are established for adhering to their lowest level.

In the event of undertaking a more ambitious task than established by the plan, the basic component of wages is increased according to an established norm. The incentive component of wages, however, increases by only 90 percent of the established norm, and the remainder remains as a reserve for the enterprise. In the event that a lower target is undertaken, the basic component of wages remains the same, and the incentive component of wages is recalculated using a coefficient of 1 for a target 3 percent lower than the plan, by a coefficient of 2 for a target 3.1 to 6 percent lower, and by a coefficient of 10 for each percentage point by which the plan which has been undertaken is lower than 6 percent below the plan.

The upholding of binding limits for a factory is evaluated, and a factory upholds them if the volume of paid out wage resources which have been included in the costs of a given period are not higher than the usable volume of wages payable, as established on the basis of fulfillment of conditioning and critical indicators and adjusted for so-called addable and deductible amounts.

Amounts which may be added are established as amounts for high technical sophistication and product quality, bonsues for discoveries and inventions, improvement suggestions (as long as this amount exceeds the bonuses paid out for the same period of the previous year), and the like.

Deductible amounts are those, for instance, for low technical sophistication and product quality, for exceeding the binding limit for total employees or for technicomanagerial employees, exceeding the limit for overtime and brigade hours.

In factories where the upholding of binding limits is threatened, it is necessary to move immediately to eliminate the reasons for underfulfillment, and on occasion to take measures against the employees who are responsible. On the basis of an analysis of the reasons for not fulfilling the task, the enterprise and factories will take concrete measures which will spell out what must be changed in the sphere of production, its preparation and management. The system for analyzing the causes of failure to fulfill the plan and for adopting measures to eliminate these causes is a component of the principles of internal enterprise management.

Aser Comment

Prague HOSPODARSKE NOVINY in Czech 25 Sep 81 pp 8-9

[Article by Eng Ladislav Aser, enterprise director, Electro-Prasa Hlinsko in Bohemia: "Leeway for Implementation"]

[Text] When one speaks of internal enterprise khozraschet, this concept is often restricted to only the khozraschet of managerial and cost centers. However, even before this may be considered, it must be preceded by a stage when the planned output and input targets are broken down by individual factory. And it is precisely on the objectivity of this stage that the mobility of the subsequent, center-based budgets predominantly rests. At our enterprise we already ceased using the global index method of plan breakdown a number of years ago when allocating the planned targets to individual factories. Nor, to be fair to the factories, could we permit the use of such a method (it has never been officially declared, but it is in use everywhere). We have, you see, a strictly centralized marketing activity.

From this it follows that the factories are required to assure, within the framework of the overall planned volume of production, a product mix which is distributed in detail among the product-mix plans for enterprise production. It is clear that in view of the significant variability in the consumption of unit material, labor intensiveness, and profitability, and also in view of the significant variations in the contribution of adjusted value added per Kcs 1,000 of output for individual product mixes, the breakdown of plans for labor, output, costs, and profit must also be based on operative and planned calculations for individual products. Planned tasks for factories, since they derive from a normative and calculational base, are thus established objectively.

In the use of these now discredited words "objectively-objective," I have in mind that every factory, even despite significant differences in the resultant tempo of aggregate indicators, has the same demanding task in relation to its own production base. The mutual comparability of tasks among factories is measured, under our conditions, by the need to reduce the labor intensiveness of production, the consumption of material and purchased sections in comparison with initial calculations, by savings in the consumption of fuels and energy, by limitations on overhead materials and outlays for low-quality work, by the turnover of inventories, by the volume of fully depreciated capital assets, the number of hours that machinery work stations are in use, and the like.

The indicators which have been broken down: profit, return on operating assets, adjusted value added are, then, already accounting indicators, the level and development of which we are capable of arguing in terms of separate, detailed elements. This system of breaking down a plan by factory, and deriving it from a normative base places, to be sure, great demands on the maintenance of the completeness of all the links to the enterprise plan, but creates excellent preconditions for center-based khozraschet.

A precondition for this to function is a clear concretization of tasks, and the resources for the assurance of these tasks, by managerial centers, and derivatively, in selected cost categories and by cost centers. We determine the tasks for the centers based on the following: the product-mix production plans and the related operational plans for the production of components and sections, assembly plans, and daily implementational plans; yearly limits; quarterly and monthly budgets for the managerial and cost centers; the comprehensive socialist rationalization plan, above all in the areas of reducing labor intensiveness and conserving materials and energy; also the plan for technical development in the area of developing technical preparation for production and the mastery of the production of new products and technologies; the development plan for individual types of inventory; the plan for making capital assets operational and for liquidating capital assets.

Together with the specific indicator of implementation assured by a marketing center, the extent of the breakdown of tasks for the managerial center provides a guarantee that their fulfillment by the factory and the enterprise also implies the fulfillment of all the numerical values which enter into the calculation of the synthetic indicators of return on production assets and adjusted value added.

The enterprise regulations, as well as the implementation directives which we have issued in the enterprise for the implementation of the Set of Measures, resolve quite concretely the regularity of evaluation of achieved results by individual managerial and cost centers, in the form of the so-called comprehensive economic valuation of nonplanned contributions of centers to the economy of the enterprise. In this evaluation of the centers we proceed from the principle that 100 percent fulfillment of the allotted tasks is the responsibility of the work collective of the centers. Therefore, in the comprehensive economic valuation of the centers we aggregate exclusively deviations from the plan in the following areas:

-- fulfillment of tasks in the conservation of standard hours;

-- remaining under planned limits for the number of nonproduction employees;

-- remaining under planned limits for the number of hours devoted to nonproductive work;

-- fulfillment of tasks in the reduction of the consumption of unit materials;

-- achieving economic results through the sale of internal enterprise output;

-- fulfillment of critical material and financial outlays, and revenues in addition to those from sales, from production activity;

— maintenance of planned levels of inventories;

— fulfillment of the plan for liquidating capital assets.

All deviations from the plan are transferred, according to principles previously established, to a unified value expression of the influence of these deviations on economic performance--profit. Let us take, for instance, the first and last criteria of the valuation: the fulfillment of tasks in the conservation of production manhours, and the fulfillment of the plan for liquidating capital assets. If a center assures a greater reduction in direct labor input (production manhours), it is possible to expend fewer unit wages to achieve planned output, and therefore fewer supplementary wages as well, and the contribution to national insurance is also reduced. The influence on profit, both in a positive and a negative sense, is completely clear and has made it possible for us to establish a firm rate for standard hours.

If the plan for the liquidation of capital assets is not fulfilled, then this implies an increase in production assets, which requires, in the interest maintaining the planned return on production assets, a subsequent need for increased profit formation. The connection between the level of plan fulfillment in the liquidation of capital assets and the level of profit is also clear. In this way, we have succeeded in transferring seemingly incomparable valuation criteria to the common denominator of profit. This is the reason for the name comprehensive economic valuation of the nonplanned contributions of centers to the economy of the enterprise.

In specific regulations governing the implementation of the Set of Measures we have also clearly resolved material incentives for the results of comprehensive economic valuation. At present this material incentive is linked to the creation of funds for the managers. We expect, however, that following verification of the objectivity of a comprehensive economic valuation of centers this truly comprehensive result will become a decisive criterion for the valuation of the efficiency of work performed by the labor collective of a center with a view to the evaluation of intercenter competitions, the fulfillment of premium indicators and generally to more closely bind compensation to the achieved results of work from the viewpoint of the differentiated objectives of wage policy.

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REGULATIONS ON NEW FORMS OF BUSINESS ORGANIZATIONS AMPLIFIED

Budapest HETI VILAGGAZDASAG in Hungarian 26 Sep 81 pp 37-38

[Text] It Is A Matter Of Department

In response to our articles on various possibilities of enterprise, several readers contacted our editorial office in order to find an appropriate organizational framework for their promising ideas though to get started they need legal and financial advice. Now that part of the decrees on the new organizational structure and operation of small-industrial production have been released, we can turn to practical information and get down to reality. In the present and the next few issues, we will be giving detailed information on the regulations regarding the new forms. As a starter, we will discuss the newly extended possibilities in contract operations.

Is there anyone who, in addition to being annoyed, is not worried as well when something breaks down in the house or when the car will not start? Locating a repair man sometimes requires a great effort which is out of proportion to the breakdown. And even if one is found, will he come in time, can he make the necessary repairs, and will his charges be reasonable? Those who can greet the arriving specialist in such a "crisis" as a personal acquaintance, are exceptionally lucky. In the largely impersonal offices of the servicing enterprises and in the long chain of clerk-to-central office-to servicing department which is hard to locate, the "simple" customer must resort nowadays to tipping in order to reestablish the relationship between those standing at the opposite sides of the counter.

When the contract operational system was introduced in the catering industry and retail trade, there was relatively little talk about the role of personal relationship and trust. Now that the decree of the Council of Ministers, and the joint decree of implementation of the ministers of finances and labor make it possible to operate industrial, consumer and other servicing enterprise departments through the contract system, this also becomes an important factor. For it is, without question, in the interest of the contract department's manager and workers to live up to their reputation in their know-how, dependability and care. What is the nature of this direct interest?

The contract system, in practice, is nothing but a contract made between the enterprises and the contractor, in it, the latter assumes the responsibility for a certain quota of sales and the payment of a proportionate fee, while the enterprise allows him during this time to use the department's fixed assets and stocks. This system can be applied to industrial production, consumer and other services (e.g., repair and maintenance), trade of production equipment, and waste collection, but only in departments which have a maximum of 15 employees. This system can be used, for the time being, in the state sector, in economic associations, and within the framework of the General Consumer and Marketing Cooperatives. In industrial and agricultural production cooperatives, an increased personal interest and less red tape is made possible not by the contract system but by the so-called lump-sum system, which will be discussed in our next issue.

The department which is engaged in an activity reserved exclusively for state management organizations, cannot be operated by the contract system because of warranty requirements of implementing official regulations (such is, for example, electric supply).

The enterprise is required to sign a contract with whomever makes the best offer at the public bidding, i.e., who makes the best offer. The operation may be undertaken by any private person who

--has the professional qualifications necessary for the operation and for license issuance (e.g., trade school diploma and 2 years of professional background),

--is, or becomes, an employee of the enterprise;

--is not disqualified for any reason. (A reason for disqualification is, for example, a prison term following a conviction, or the annullment within 3 years of an earlier contract by the enterprise, or the revoking within 3 years of trade license by the authorities).

A maximum of 5 persons may undertake a contract operation; they must establish a legal association between themselves. In such a case, the contract between themselves must include details of management rights. During the time period of the contract operation, the contractor (or the members of the association) are not considered to be on the enterprise's payroll but this time period does count as employment [service] from the aspect of certain labor regulations, e.g., the qualification for retirement pension. The department's employees are the enterprise's employees, but their employment is contingent upon the manager's approval. On the basis of employment with the enterprise, family members may work in the departments as well. Close relatives (brothers, sisters, sons, daughters, parents, spouses) may work without establishing an employment relationship but must obtain previous enterprise approval.

The manager is independent in organizing and managing the department's activity. He acts at his own responsibility and risk, but he does so in the name of the enterprise. The manager is required to pay a fee in order to contribute to the enterprise's expenses. The fee includes social security payments for the department's workers, the depreciation of fixed assets, the rent for the establishment, and the contribution to the enterprise's profits. The wages of the department's workers, defined in their contract with the enterprise, are paid by the manager. On the net income (after deducting all overhead), the manager pays income taxes according to the income tax statute 38/1980.PM. He may share his taxable income with the department's workers, but this will not count toward the latter's disability allowance fund.

The contractor may buy material according to regulations for artisans, i.e., at a price that includes sales taxes or at one that is reduced by a subsidy, even if the enterprise's purchasing agent (who can buy without sales taxes) buys the material for the department. The manager uses the enterprise's fixed assets, and is responsible for their care, maintenance and repair. The fixed assets which are discarded, replaced or overhauled by the enterprise, must be given back by the manager at the expiration of the contract.

The enterprise benefits from the contract system in that it does not have to organize work that takes place in small groups (e.g., auto repair, comprehensive household maintenance) or individually (e.g., television repair), and does not have to deal with providing enough work for its workers. Moreover, it does not have to research the labor market as earlier when the absence of even a single specialist could halt the work of an entire plant.

What are the contractor benefits of the contract from the contractor. Many people think only of the money. But this organizational form is also appealing because it (and the other ones which will be discussed later) gives a green light to a spirit of enterprise and to the followers of the "Now I'll Show You" Movement.

9414
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MANPOWER REALLOCATION CLAIMED SMOOTH, WITH SOME EXCEPTIONS

Budapest NEPSZAVA in Hungarian 11 Sep 81 p 5

[Interview with Mrs Arany Janos, section head of the Main Judicial Department of the Ministry of Justice, by correspondent Andras Deak: "Ministerial Investigation: Is the Reallocation of Workers Legal?"]

[Text] [Question] Modernizing the product structure and increasing the efficiency of work are imperative requirements of economic life that have been emphasized for decades now; they are inconceivable without purposeful and organized reallocations of the labor force. Everyone agrees with this in principle. But what is the situation in practice? These steps, which are in all certainty well-justified economically, affect human lives and perhaps thwart individual interests and intentions.

[Answer] Everywhere enterprises and cooperatives must strive to carry out the various reallocations with the consent of the workers, if possible, said Mrs Arany, section head of the Main Judicial Department of the Ministry of Justice. It is of course impossible for economically necessary measures not to cause a single labor dispute.

[Question] Although one can conceive of innumerable human conflicts that do not show up in legal debates, for that reason we can see reflected in arbitration committee and judicial proceedings many characteristics, generalizeable features of workplace concerns and of the background to and execution of reallocations. What do judicial acts indicate?

More Purposefully, More Deliberately

[Answer] The main judicial department of the Ministry of Justice recently conducted a thorough investigation along these lines. Reallocations of the organized labor force began in 1979: the process gathered greater momentum in 1980, and at the same time became more purposeful and deliberate. According to our observations the reallocations are being carried out very cautiously, the procedures are humane, and they are, in the overwhelming majority of cases, legal.

[Question] Then we ought perhaps to speak about the exceptions?

[Answer] Illegal measures are generally found only among smaller employers and with reallocations affecting only a few people.

[Question] One hears variously that for more than one enterprise reorganization comes just at the right time. Referring to this, they may also give notice to people whom they have long wanted to let go....

[Answer] This naturally counts as a violation of rights, because the reason for the dismissal notice must be valid. In Veszprem megye, for example, there was a case where the court invalidated a dismissal notice because the reorganization that was brought up as the reason for the dismissal did not in actuality affect the sphere of activity of the worker.

[Question] Might we have some concrete examples of how many labor disputes started in the wake of certain more significant reallocation of personnel?

[Answer] Naturally. In the period examined more than 1,000 people were moved at the Pet Nitrogen Works, 800 at the Lenin Metallurgical Works, approximately 400 at Volan No 9, and nearly 350 people at the Diosgyor Iron Works--without a single labor dispute. Among the 128 transferred workers of the Agricultural Machine Enterprise, one person submitted a petition to the labor arbitration committee, while among 100 people at the Feher and Veszprem megye Bauxite Mines, respectively, 6 people did so.

[Question] What was the result?

Both Good and True

[Answer] The arbitration committees rejected the majority of the complaints, and the labor courts affirmed approximately 80 percent of these decisions. This, too, demonstrates that the majority of the enterprises are proceeding cautiously and legally.

[Question] All this already sounds so good that....

[Answer] ...that it can't be true? But it is! Let me mention a few examples. The putting into operation of the combined steel works of the Lenin Metallurgical Works involved the shifting of 5,500 people. Well in advance, the enterprise sent out questionnaires about who would apply for the new work, and they even spoke personally with the applicants. At the Kecskemet plant of the Metal Worker Enterprise they trained semi-skilled workers as locksmiths and welders so they would not have to be dismissed. In the Sarospatak factory of the Csepel Works they are now manufacturing candy machines instead of bicycles. For those workers who did not accept retraining they attempted to find work that was better suited to them.

[Question] According to our laws, the labor contract can be modified only by mutual consent. In many cases, however, it is debatable what qualifies as a modification of the contract.

Speedier Handling

[Answer] Actually there are many misunderstandings surrounding this. A worker hired at a workplace under transformation can be directed to another location or workplace within the enterprise without his consent. The extent to which there are no two identical cases is demonstrated by this: a commercial clerk employed at a workplace under transformation can be transferred to an area outside the administrative boundaries of the locality only with his consent. Further: the enterprise may also unilaterally alter the classification of a department, if its basic conditions are modified. In one concrete case, for example, the court--correctly--did not regard it as a modification of the work contract when the enterprise included several foremen in the physical work force--leaving their assignment and work place unchanged.

[Question] One of the central issues in the handling of labor disputes is speed. One has heard more than once about cases where the proceedings have dragged on for months, with both worker and enterprise left hanging.

[Answer] The ministerial investigation devoted a great deal of attention to timely administration of justice. Especially in cases begun because of dismissals, the courts must strive to conclude the proceedings prior to the given notice time. These actions are handled with special dispatch, and more than once hearirgs have been scheduled on the same day the complaint was received. In more than half the proceedings examined a judgment was rendered within 30 days, and even the more complicated cases have not stretched out beyond 3 months. It has happened that the hearings have had to be postponed because the enterprise had not appended to the dismissal notice documents justifying the reorganization. The court has set a fine of 2,000 forints for delaying the proceedings.

8971
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VALUE OF HOUSEHOLD PLOTS ASSESSED

Budapest MUNKA in Hungarian No 8,9 1981 pp 1-2

[Article by Ferenc Cserkuti: "How Much Is the Household Plot Worth?"]

[Text] The question posed in the title can even be answered in just one sentence. [It is worth] several billion forints worth of food to the country and useful jobs, and a decent income supplement to almost a million and a half peasants in the cooperatives, state farm workers, industrial workers active in the auxiliary farms, employees and retired people.

Because there are people who do gardening, raise small animals or keep bees just as a hobby, and there are those who want someting to do outdoors because to them agricultural work is a way of active relaxation, and a means of fulfilling the need for physical activity. But there are even more of those for whom the vegetables, fruit, milk, meat and eggs produced on the household plot or auxiliary farm are indispensible to their subsistence.

Security and Incentives

The fact that our public opinion values the activity of household plots and auxiliary farms generally in tems of the value they produce is to be viewed as extremely favorable. Credit fo this is due mainly to the fact that the party's and the government's agricultural policy always dissolved in time any possible misunderstandings and erroneous qualifications concerning the household plots. Last time, it was the very resolution of the party's 12th congress to clearly define that incentives must continue to be offered for production on the household plots and auxiliary farms.

We are dealing here with such an opportunity for faster progress which not only does not require specific investments but we can also save significant financial resources for other purposes. The fact is that during the last 5-year plan's time period production on the household and auxiliary farms increased by an average of 1.5 percent per year. Now the gross value of the annual production of almost 1.5 million small farms exceeds 60 billion forints. And this is roughly the same amount as our national economy's yearly export of agricultural and food industrial products.

Conscious Production Organization

It makes their work easier that these farms are tied with thousands of lines to the large socialist agricultural operations. Relying on the professional, organizational and technical activities of the TSZ's [producer cooeratives], state farms and AFESZ's [General Consumer and Marketing Cooperatives], they can produce and sell in a better organized and better planned manner, being organic parts of the large scale operation and consciously becoming components of the socialist agricultural system. Our socialist society has also found a way to make the household plots and auxiliary farms a part of the planned economy. With conscious production organization, the appropriate shaping of financial incentives and wholesale buy-up prices, and with the aid of production contracts we succeeded in achieving that they produce what the national economy needs for the balanced food supply and for export. It is also favorable that the large scale socialist operations organize and aid the household plot production of not only their members and employees, but also the production of industrial workers, intellectuals, employees and retired people who live in villages and who paritcipate in small scale production. They provide them with breeding material, saplings, seedlings and equipment and feed necessary for production the same way as they provide the household plots, and contract with them to buy their products.

But, however favorable the picture may be, one must never forget that the household plots and auxiliary farms are the most sensitive areas of agricultural production. That is, this branch can extremely quickly adjust to the factors which influence production, and adjusts flexibly not only to the favorable phenomena but also to the uncertainties. The small producer very quickly recognizes what is worth producing. But if the unfavorable factors multiply, and the family finds the profitability of a certain production branch uncertain, it usually gives it up.

How Much Does the Small Farm Earn?

The income of small scale producers is the subject of much back and forth talk and conversation. Some people will mention astronomical sums but do not have their facts straight. The truth is that more than half of the income of small producers is seasonal and is of uncertain size, and even that does not stream into the family's coffers with any regularity. In addition to this, the small producers accept risks. Their production may be struck by several kinds of plant and animal illnesses, and their income is affected by the fluctuation of prices and by the uncertainty of sales. Thus, if selling the product they produced causes difficulties, next year they won't try it but will perhaps switch to producing a product for which there is a market. This is the better case, and it is worse if they completely give up production.

The income situation of people living in villages has thoroughly changed in the last 20 years. Today's young and middle aged generation will undertake household plot production only if the production of products is profitable. It must also be known that the majority of the producers are workers and employees, thus small scale production has ceased to be an exclusively peasant activity. Social restratification is significant. Of those studied who farm or raise livestock on acreage on a minimum of 1,500 square meters of plowland or 800 square meters of garden, fruit orchards or grape vineyards--52 percent are presently workers and employees, and only 26 percent are agricultural workers; the rest of them are retired. The small scale producers supplement their TSZ, state farm, factory and office incomes with the work they do on the houshold plots, and this also means that for most this activity is not simply matter of earning a living. They do extra work only if it produces additional income.

The Statistical and Economic Anaysis Center of the Ministry of Agriculture and Food Industry [MEM STAGEK] conducted a study on how the cost and profit situation of the main products of household plots and auxiliary farms developed last year. We see from this that on the small farms one hour's work for one's self produces a gross income of 28 forints for growing cucumbers on open land, 28 forints for growing grapes for wine, 16 forints for raising slaughter cattle, 19 corints for raising piglets, and 22 forints raising rabbits. This is because the income of the producers is strongly influenced by costs, market conditions, and the weather. Thus, in setting the prices of industrial materials, equipment, feed, and plant protecting chemicals it must always be taken into consideration how much more the household plot operations can still support, since we can expect more production from these operations only if the people working there can enjoy a satisfactory income for their work.

Urbanization and Culture

In addition to first producing the materials and equipment and creating a reliable market for them, must also be taken into consideration in setting up the conditions for small scale production that the producers have a way to spend this income. Because the small producer wants to build a house from the profits of his work, wants to modernize his apartment, or save for furniture, household appliances, or an automobile. Yes, an automobile, which in the majority of the cases he will use then to take home the feed and equipment he needs in the household plot operation, and to carry the merchandise produced to the buyers. Financial foundations must be created in the villages for growth to create a more modern, more up to date way of life. This is why we can't understand why in many places they are afraid that raising livestock in the household plot operations will jeopardize urbanization. It does happen in many places that they try to limit the raising of cattle or hogs--even in traditionally agricultural settlements. Even though the village is being built and the environment is being created, and are becoming more beautiful from the results of livestock raising and from the value of the product produced in the gardens of the household plot.

As long as we are at this point, it is also worth mentioning that there are people, and more than just a few, who worry about the advancement of the cultural state of the small producers, saying that household plot production takes them away from cultural advancement. It is true that household plot production involves a tremendous amount of work and self-denial, because the person who elects this activity must get up very early and go to bed late at night. (Let's not forget that this work is done outside of the regular working hours, sacrificing one's free time.) But this additional income is the very thing that creates the foundation for building modern homes, and furnishing their homes according to today's lifestyle. Thus, in the final analysis this enables them to live better, and to create the preconditions for a more modern lifestyle. It is a misbelief that the village will be more like the city if livestock raising around the house is eliminated, if the cattle cannot be driven to the pasture because they may trample the rosebushes planted in front of the fences. Livestock raising should not be feared as a danger to the village's modernization!

All these things can and must be understood. We need conditions whereby extra work makes sense and produces results, and makes extra work worthwhile. Therefore, our society pays much attention to insure that the development of economic regulators, standardized and simplified taxation conditions provide the appropriate incentives for the household plots and auxiliary farms to produce. For example, the small producers can obtain state assistance to establish plantations, to grow vegetables under foil cover, or to buy machinery, chemical fertilizers, pesticides, or weed killers. The state assistance also extends to cattle raising. The conditions of taxing their income also promote the growth of small farming operations.

To Provide the Food Supply

The quality of technological, biological, financial and technical conditions play definitive role in production. In livestock raising, for example, much depends on the supply of breeding stock and the base stock for fattening. Whether the small producers can obtain the breeding stock, and if so, what its quality is. It is a great achievement in that now small producers can buy grape and fruit propagating stock in the country's 150 horticultural supply stores and tree nursery depositories, and that there is a balanced supply of packaged vegetable seeds. The household plot livestock raisers are especially sensitive to the availability of feed. The fact is that grain fodder and feed supplements can now be bought in 5,400 places in the country.

Livestock raising, with its 60 to 65 percent share, is the definitive aspect in small scale agricultural production. These farms have 53 percent of the total hog stock, 51 percent of all the sows, almost 30 percent of the cattle, 73 percent of the basic poultry stock, and 14 percent of the sheep stock. And the Sixth 5-Year Plan expects the household plots and auxiliary farms to increase their slaughter animal production by 3.2 percent. For example, the national economy expects them to produce 660,000 tons of slaughter hogs, 180,000 tons of slaughter poultry, and 52,000 tons of rabbits in 1985.

Of course, the household plots and auxiliary farms still need a lot of equipment and materials. It is reassuring to know that besides the growth of the chemical fertilizer and pesticide supplies, signs of improvement are also seen in small machinery and tool supply. The quantity of these goods has doubled in 4 years, but the quality of the materials and the lack of some specialized less expensive tools represent problems.

The supply of small machinery is a special problem. It now seems that the efforts are finally beginning to pay off. For example, domestic manufacture of rotary hoes and universal small tractors has begun. And the technological and technical progress in small scale production may also have the side effect that the younger generation living in villages will increasingly participate in this activity.

Of course, successful work by the household plots and auxiliary farms is unimaginable without the production organizing activity of the large agricultural operations, the AFESZ's, the production contracting and support service enterprises. The help provided by the TSZ's and state farms includes among other things, breeding stock, feed, propagating materials and seeds supplies, performance of the mechanical and soil preparation work, shipment, professional advice, and procurement products. Thanks to this, for example, the livestock trade and industrial meat enterprises last year were able to buy 3 million hogs from the small producers, 2 million of these were obtained through the cooperation of the large farms. There are some large farms, such as, for example, the Voros Csillag [Red Star] TSZ of Turkeve, where more than 20,000 hogs are being fattened by the household plot operations. The example of the Marcius 15 [March 15] TSZ of Hernad is well known, where last year the household plots produced 7,450 tons of meat. And we could go on listing the examples. Perhaps the most important thing still is that if, for example, this large quantity of meat had to be produced by the large farm in Hernad, the farm would need an investment of about 350 million forints. Our present economic situation would not permit this.

The TSZ's employ 2,700 specialists to organize production and sales, and to purchase the materials and equipment the small producers need. In the state farms the number of specialists helping the small producers is over 200. It is significant that the small producers now sell over 16 billion forints worth of agricultural products through the TSZ's, and almost 1.5 billion forints through the state farms. Procurement by the AFESZ's exceeds 9 billion forints. Besides these, the household plots and auxiliary farms produce a tremendous amont of food for their own consumption, or take directly to farmers' markets.

So we are apeaking of large sums. Domestic supply as well as exports demand that all areas of food production increase. The encouragement and all the conditions which contribute to the growth of household plot production are needed for this. Only this way can it be achieved that the prescribed production increase becomes reality in the household plot and auxiliary farms as well as in the large scale farm operations. Obviously, the household plots are worth alot! They serve the reliability of food supply, and also they contribute to the profitable food export which is so important to the national economy.

8584
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BABOLNA SPECIALISTS WEIGH LIMITS OF CORN PRODUCTION SYSTEM

Budapest MAGYAR HIRLAP in Hungarian 13 Oct 81 p 7

[Excerpts] At the present exhibit staged by the Babolna Agricultural Combine, two employees of the combine were questioned about the status and prospects of Babolna's Industrial Corn Production System.

Mrs Istvan Kiss, PhD, is in charge of the experimental varieties section. Each year she directs comprehensive tests on several hundred varieties of hybrid corn. She and her group decide which hybrids are to be grown on 230,000 hectares farmed by Babolna's several hundred partner farms.

According to Dr Kiss, even though the farms as a whole produce a generous 1 ton per hectare above the national average, yields could be much higher if all production conditions at least approximated the optimum of the inherent potential of the varieties grown. Conditions include adherence to technological requirements, use of the proper amount and type of fertilizer, timing of operations, correct use of plant protective agents, quality of seed. Under ideal conditions it could not happen that one partner would produce yields of a mere 28 quintals while others produce yields in excess of 100 quintals per hectare.

Istvan Kiss, Dr Kiss' husband, who organizes production has a different approach. According to him, "The level of corn production is at a standstill, because the growers lack incentive for increasing yields. This serious charge is substantiated by a computer analysis of the corn production system. Production data of the growers reveal that current prices make the additional investment required for higher yields a paying proposition only up to yields of 7.5 tons. Expenditures entailed for higher yields exceed income growth. When yields reach a record of about 10 tons, corn production again becomes profitable.

"However, the majority of farms, even those with the best equipment, average yields of 5.5-6.5 tons and must be content with a very modest income in return. This is because average growing costs have increased by 60-70 percent over the past 3-4 years while bulk purchasing prices have risen by barely 10 percent."

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FOOD CONSUMPTION, PRODUCTION PROJECTED

Long-Term Development Trends

Warsaw NAUKA POLSKA in Polish No 3-4, Mar-Apr 81 pp 3-24

[Article by Zdzislaw Grochowski: "An Assessment of the Feasibility of Developing Agricultural Production and Providing Food for the Country*"]

[Text] 1. The Present Level of Food Consumption and Tendencies of Change

The general level of food consumption in Poland is adequate from the standpoint of energy value, which is determined to be about 3,400 kcal per day per inhabitant. This value is higher than that recommended by the United Nations Food and Agriculture Organization and the standards accepted in other countries with similar climatic conditions (3,150 kcal). The differences in these standards may result from different definitions of gross and net requirements, i.e., either on the basis of production balances (as is the case in our country), or on the basis of actual consumption. Nevertheless, the calorific value of the food standard in Poland contains a wide margin of safety, and food resources are sufficient to meet the energy requirements of all population groups.

According to determinations made by comparing food consumption in working families (Central Office of Statistics data) and accepted as a minimum food standard (standard B), the consumption of protein in recent years was somewhat lower than recommended, but the share of animal protein was higher and thus the nutritional value of the protein consumed was greater than the standard requirement.

In view of the large differences in individual food consumption, there is consumption below food requirements (in low-income families or those suffering misfortunes), as well as excessive consumption.

For a long time there was been a very high income flexibility for expenditures for food, irrespective of the growth rate of the population's incomes and standard of living. It is shown in the 0.6 percent growth of these expenditures for every 1 percent growth of incomes and a very distinct differentiation of income flexibility of demand for meat, amounting to 0.9 percent for 1 percent of growth of incomes. This is one of the causes of market tensions, for the growth rate of personal incomes greatly exceeds the growth rate of farm production.

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*This is a summary of certain parts of a professional report under the same title, prepared in the Agricultural and Forestry Sciences Section of the Polish Academy of Sciences. The work was initially directed by Prof Franciszek Kolbusz and later by Prof Zdzislaw Grochowski, chairman of the Agricultural Economics Committee. A synthesis of the report, based on 30 papers written by specialists in various scientific disciplines, was prepared by Dr Antoni Leopold and Prof Zdzislaw Grochowski.

Food consumption, which in Poland is a considerable portion of the consumption fund, is only one of its elements. Thus the problem of shaping demand for food goes far beyond the limits of the food economy. If food requirements (as set by the standard) are to be fulfilled to a high degree, then the problem of halting growth in food consumption arises (with the exception of the population groups with the lowest incomes), and this can be solved principally by increasing the potential of expenditures for durable goods and services. Considering the agricultural and natural limitations of food production and the higher results of labor and capital outlays in industrial production, changes in the structure of consumption are not only necessary but they determine the rate of growth of the national income and the population's actual incomes.

During the first half of the 1970's, the growth rate of consumption of animal products increased greatly in comparison with previous periods. Meat consumption per one inhabitant during 1971-1975 increased 17 kg, i.e., it was even slightly higher than during the 1951-1970 20-year period (16.5 kg).

Although a growth tendency in meat consumption is seen in all countries, the increase in Poland during the first half of the 1970's was particularly high and exceeded the production capability of our agriculture and was attained due, among other things, to an increase in imports of grain and feed (from 2.1 to 4.9 million tons). As a result, the increase in consumption was the direct cause of the negative balance of foreign trade in agro-food products and the transformation of our country from a previously traditional exporter (up to 1972 inclusively) to an importer of food.

Based on comparison with West European countries, the level of meat consumption in Poland is very high in relation to the attained national income per one inhabitant. Thus, in meat consumption in recent years we have exceeed the production potential of our agriculture and the entire national economy.

The large share of pork in consumption is attributed mainly to the availability of that meat, which, in turn, is dependent on results of pig farming. Recommendations on greater consumption of beef and poultry, dictated by dietetic considerations, must be seen in the context of production capabilities which tend to further develop the production of pork as giving high meat productivity per unit of cropland. The fulfillment of the demand for meat with pork conforms with food habits.

One defect in the structure of meat consumption in Poland is the excessively high share of cured meats, estimated at 60 percent, and limited share of cooking meat. Attention must also be called to the need to maintain more care than heretofore in using substitutes in meat products. The share of substitutes should be reduced.

The effect of the export of meat (generally the best) on the reduction of the quality of meat on the market and the ways it is utilized cannot be underestimated. At the same time, a growth in demand for better varieties of meat is seen. This is connected not only to the relatively low price, but also the lack of improvement in quality of the cheaper varieties of meat and processed meats (cured meats).

The growth of meat consumption, assumed in the resolutions of the PZPR Central Committee's Fifteen Plenum in 1974 to reach 85-90 kg per 1 inhabitant in 1990, corresponds to the present level in the most developed West European countries. The fulfillment of this assumption, however, depends on the production capabilities of agriculture. We will speak of this later in this article.

The consumption of milk and dairy products (except for butter) grew slowly. During 1960-1970, milk consumption (together with butter) per 1 inhabitant, increased 1.3 percent yearly (from 340 to 400 liters), and during 1970-1979, this rate dropped to 1 percent yearly (in 1979 consumption was 430 liters). Poland is a country of rather high milk and milk products consumption. A similar level of consumption (420-430 liters) is seen in France, FRG and Denmark. Only Finland consumes more milk (about 600 liters), but their level of meat consumption is considerably lower.

Milk, particularly protein, is not being utilized efficiently. Despite the relatively high share of liquid milk in consumption, population requirements are not being met, because, among other reasons, of the quality of the milk supplied to the city people. The high consumption of milk in farm families, over 60 percent more than the consumption in working families, suggests that there will be a decline in the average consumption of liquid milk in the country when people migrate to the cities. The low quality and small variety of dairy products can be ascribed to their low importance as substitutes for meat proteins. The taste and quality of cheeses, which also, in view of habits and relatively high prices are not a competitive product with cured meats, are unsatisfactory. This opens up a field for action in making the desired quantitative changes, conditioned, however, on an improvement in the quality of the products and their range. This problem is even more important since in addition to the scientific teachings on nutrition there is a production potential for increasing the lactation yield of cows and making much better use of milk, particularly protein, and by efficient milk processing.

From the standpoint of butter consumption per 1 inhabitant (8.8 kg in 1979), Poland ranks with the average-level countries. Only a few European countries consume more butter: Finland (12.2 kg), Ireland (11.1 kg), GDR (10.5 kg), Belgium (10.1 kg), and France (9.3 kg). In some countries recently butter consumption declined (Denmark, Holland, FRG, Sweden, United States), where for health reasons vegetable fats are substituted. In our counditions, butter consumption, according to assumptions, should not exceed 10 kg. But this will depend on the development of good-quality butter substitutes.

If on the one hand we take into account the potential of growth of consumption of dairy products (together with butter), and on the other hand the decline in liquid milk consumption, especially in the village, than it should be assumed that the growth rate of total milk consumption in the next few years should not exceed 0.8 percent annually. The general level of milk consumption in 1990 would be about 470 liters per 1 inhabitant.

In view of the fact that the production of animal protein contained in milk is, in comparison with meat, the least "land-intensive" animal production, it would be desirable to stimulate (with the help of product quality and prices) consumption of dairy products as a meat substitute, for example to about 500 liters per one inhabitant.[1]

Implementation of the first or even the second variant of growth in comsumption and production of milk will depend on the variant of growth in production and consumption of meat, i.e., if less meat is consumed, milk consumption should be higher, and the converse.

Egg consumption per 1 inhabitant during the 1960's increased an average of 2.7 annually; in the 1970's (up to 1979), it increased 2 percent annually. This, then, was a clearly shrinking rate. By 1990, an increase in egg consumption per 1 inhabitant is assumed, from 221 eggs in 1979 to 270 (about 15 kg), which is really the upper limit of consumption from the standpoint of nutrition standards. Only a few countries have exceeded this level by 1 to 2 kg (FRG, United States, Czechoslovakia, Japan), and in some countries a distinct downward trend is seen (United States, Great Britain, Canada, Belgium), or a stagnation of consumption at the 11-14 kg level (Austria, 14 kg; France, 12.9 kg; Sweden, 12.4 kg; Denmark and Holland, 11.5 kg).

An increase in the consumption of fish, although desirable from the standpoint of recommendations on good nutrition, will depend principally on the availability of supplies, which are not too optimistic.

The consumption of fat, on the average, is too high, for it supplies about 40 percent of the calorific value of consumed food. In relation to the minimum standard (standard B), fat consumption, according to studies of household budgets, is higher by about 20 percent. A reduction in the share of energy derived from fat consumption to 30 percent of the calorific value of food is desirable. The increase in consumption of fats, anticipated in current plans, is unwarranted and would result in poor nutrition. Changes are also desirable in fat consumption, directed at reducing the consumption of animal fats (other than butter) and increasing the consumption of oils and margarine. The quality of vegetable fats may be improved by using soyabean and sunflower seed oils and by improving solidification methods.

Insofar as carbohydrate products are concerned, there has been a decline in consumption of grain products and potatoes, while consumption of sugar has increased. These tendencies are undesirable from the standpoint of good nutrition recommendations, but they have also appeared in most economically developed countries. It will be difficult to change the preferences of the consumers, although the rate of decline of consumption of grain products, and especially potatoes, is tied to the shortcomings in the organization of supply and the low quality of the products. These shortcomings are also the cause of waste in baked goods and potatoes.

The edible potato market is not properly organized. The supply to the cities of fresh potatoes and to industry of potatoes for consumption processing should be based on specialization of regions which produce suitable varieties of potatoes, on direct deliveries, and on a network of warehouses. In recent years, in some developed countries, we have seen an increase in processing, and a related halt in the decline or even an increase in the total consumption of potatoes. The dietetic value of potatoes and eating habits in Poland can be utilized by proper organization of production, processing, and supplies to the city populations.

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[1] The PZPR Central Committee's Fifteen Plenum resolution of 1979 foresaw an increase in consumption of milk and its products to 540 liters per person in 1990. In the light of present growth trends in milk consumption in our country, and also in countries which have higher meat consumptions, it is believed that this standard was too high.

There is no justification for increasing the consumption of sugar, which is greater than in many countries with a higher level of incomes. The production of carbohydrates in the form of sugar from beets is the least "land-intensive" and has some additional benefits for agriculture. It seems, however, that the assumed growth in sugar production does not take into account the need to halt its consumption and the limited export potential.

A large number of differences have appeared recently in the consumption of vegetables and fruits. Despite fluctuations in consumption due to crop yields, quantitatively consumption does not differ from that in other European countries with the same climate. Thus far, there are no completely reliable estimates of the consumption of fruits and vegetables in Poland, especially by the village population. Data from various sources differ greatly. It is believed that actual production and consumption of vegetables is lower, and fruits higher, than statistics indicate. There is also lack of agreement in opinions on the desirable level of their consumption from the standpoint of science and nutrition. This makes it difficult to evaluate the situation and formulate realistic planned tasks in the field of production and consumption.

Several groups of food products can be listed whose consumption should be shaped differently.

In the first group, which contains sugar and sugar products as well as fats containing highly saturated fatty acids (animal fats and solid vegetable fats), there should be a decrease in the presently occurring growth, stabilization, and even a drop in consumption.

In the second group, in which consumption is increasing too slowly in relation to scientific recommendations on nutrition and economic capabilities, an increase in consumption of fruits, vegetables and vegetable oils should be obtained.

In the third group of products, in which consumption is decreasing, i.e., grain products, potatoes and legumes, the decline in consumption should be halted.

The fourth group is comprised of animal products, such as milk and milk products, eggs, and meat. Milk consumption should be increased or at least maintained at the present consumption level, particularly processed products in the form of cheeses, cottage cheese, and dairy beverages. The envisaged growth in egg consumption, which is shrinking in relation to the rate of growth heretofore, is warranted, for it is gradually fulfilling dietary requirements. The growth in meat and meat products consumption is still a long way from satisfying needs, and will be determined primarily by the capabilities of agricultural production.

2. Economic Problems in Shaping the Demand for Food

The situation on the food market must be examined against the background of the general development of consumption, although consideration must be given to the specific features which govern the consumption of food. The assertion that the tendencies appearing in the demand for food are irrational, requires that means of economic policy must be sought which will allow us to extricate ourselves from a situation of unceasing shortages, especially of meat, which cannot be regarded as objectively justified by production capabilities. The lack of balance on the food market, particularly on the meat market, is not a phenomenon which is independent of the mechanisms which also shape incomes and supply the market with all consumer goods and services. We must seek the solutions for this problem not just in the sphere of food production, but also, and perhaps even more so, in the sphere of factors which determined the demand and structure of consumption thus far.

The problem of the food market, and basically, the meat articles market, can be solved only through the simultaneous action of factors affecting production and supply as well as demand, and the effective influence of these factors requires important modifications in the economic structure and development mechanisms.

The mechanisms of development in our economy not only do not halt demand for food products but on the contrary, they enhance the growth of this demand. Recently there has been an acceleration in the process of comparative cost reductions in food.

Economic mechanisms must be established which would adapt demand, especially for meat, to the production potentials of agriculture. This would mean, in actuality, a striving for a basic change in a situation in which industrial articles are comparatively increasing in price, while food articles are costing less. The selection of measures, the time at which they are applied, and the cohesiveness of policy on the shaping of incomes and prices must be of fundamental importance.

Irrespective of the force and weight of the premises arguing for a change in the proportion of prices of consumption items, the operation itself is difficult and in reality requires that the economic structure be prepared both as to level and structure of production and as to prior subordination of income policy to the intended changes. The maneuver of changing the consumption structure should not, of course, halt improvements in supplying food to those population groups which lack an adequate level of food consumption. The purpose of the activity is to increase the consumption fund, decrease the share of food, and particularly meat, by drastically reducing the income elasticity of demand for meat of those population groups who already are at a high consumption level.

When a general market imbalance is apparent and, at the same time, an imbalance in the market of nonfood items, a comparative increase in prices of food can take place only through a faster growth in prices of food articles in relation to prices of nonfood items. However, a growth in food prices in relation to prices of commercial items, causes an absolute impoverishment of low-income population groups. That is why this type of change in price relations must be made while taking into account the need to increase the monetary incomes of families that are not well-off. Compensation should be granted principally to all low-income groups and should counteract the decline in real incomes, even increasing them in these groups. Under these circumstances, the halt in the growth of the total size of demand for meat may not occur. Over the long term, however, the new system of prices and wages would be beneficial in shaping the structure of consumption.

The change in the situation on the food market by reducing the increase in demand for meat and its products depends not only on the changesin the relationships between prices of food and commercial items, but also on the changes in the relationships of prices on the food market itself. Meat and meat products in Poland are comparatively cheap in relation to cheeses, fish, fruits and vegetables, butter, and margarine. For this reason, among others, in low-income groups the lower consumption of meat is not compensated by a comparatively higher consumption of animal protein in other articles. The price relationship, the limited assortment, and the low quality of dairy products are not conducive to an increase in milk consumption. The whole animal protein in milk and milk products requires scarcely 40-50 percent of the fodder needed to produce the same amount of protein contained in meat. Thus there is a greater potential for an increase in milk production than other protein products.

But it would be difficult to expect a dictinct growth in demand for dairy products at the expense of a growth in demand for meat without a comparative reduction in the cost of milk items in relation to meat and meat products. This also would be impossible without a decided improvement in the quality and assortment of dairy items. It should be stated, however, that one of the serious barriers to the improvement of quality in dairy products is the shortage of milk fat. This is due to the rapid growth of demand for butter. This shortage can be corrected only by increasing the substitution of vegetable fats for butter. This substitution requires a further increase in the quality of vegetable fats offered to the market.

The proportion of prices among beef, pork and poultry must be thoroughly considered, for it does not now correspond to the proportions of production costs and productivity that can be obtained from a unit of fodder and a unit of cropland. In modern poultry production, the lowest consumption of feed per unit increase of meat can be obtained, which suggests that a reduction in the price of poultry as compared with other varieties of meat should be expected. Agricultural conditions in Poland favor the less "land-intensive" production of pork over the development of the production and consumption of beef. These objective production factors and the price ratios on foreign markets should be considered in making changes in prices of agricultural and food products.

There should also be a comparative drop in prices of fruits and vegetables. As a rule, consumption of meat and meat products and fruits and vegetables increases as incomes grow. In our circumstances, there are opportunities (from the long-range standpoint) to guarantee the development of the consumption of fruits and vegetables and their products.

The low increase in supply and rapid growth in prices of leguminous articles is disturbing. Thus the price of high-protein vegetable articles, which are potential substitutes for meat, is rising. A rapid growth in consumption cannot be expected if, for example, a kilogram of beans costs more than a kilogram of the best meat.

Trends in consumption of meat and meat products lead to an increased demand for better varieties. This means comparative price increases on better assortments of higher quality. The price relationships on our meat market correspond to the level of incomes and pattern of meat consumption of several years ago. The rapid growth of demand for better varieties of meat and meat products is affected also by a lack in improvement of quality (or even a regression) in the production of many meat products. The recent preferences given to quantity at the expense of quality of meat products is in conflict with the striving to improve the diet. This may lead to waste of such a valuable raw material as meat. It is now necessary to strive to improve the quality of so-called average and poorer-quality cured meats. Because the public now has an appreciation for quality, this will require improvements in recipes and methods, and also changes in names. The problem may be solved by coordinating changes in prices on the meat market with a reform in recipes and names of products.

It appeares from the above that there is a large potential for neutralizing the comparative increases in prices of meats and meat products by maintaining comparatively low prices on a number of food items which can compete with meat.

3. Farm and Production Policy

The negative balance of foreign trade in agro-food products (which in 1979 amounted to almost 1 billion dollars, and over the 1970's totaled over 5.5 billion dollars) during an increasing national indebtedness means that the increase in the production and consumption of animal products, attained through a growing import of grain and fodder, is occurring to a large degree on credit. The need to reduce the import of grain and fodder in order to balance or at least reduce to a minimum the negative balance of foreign trade with agro-food products, will make it very difficult to increase farm production during the 1980's, and especially during the first half, because:

-- the increase in crop production must ensure that the fodder gap, resulting from lower imports of grain and fodder, will be filled;

-- the high increase in animal production during the 1970's, based on imports of grain and fodder, was responsible for wide-spread application of grain-intensive technologies of animal-feeding, which go far beyond the present level of domestic grain production;

-- the possibility of increasing grain production during the 1980's will be lower in relation to previous predictions because of considerable delays in implementing the program of mineral fertilization.

The problems in further increasing farm production result not only from the need to reduce imports of grain and fodder, but also from lower land productivity as its expanse is increased, from observed symptoms of a decline in economical management and the degree of crop utilization, and also from the effects of system conversions in agriculture, which show a net final production of one-third less from a unit of acreage in the socialized economy than in the private economy.

The causes of the disruptions in the growth of farm production in recent years can be grouped as follows:

1. Negative phenomena in the processes of system transformations, land management, and organization of production;

2. Disruptions in supplying agriculture with production resources and in the functioning of market mechanisms, due to disturbances in the economic balance in the entire national economy.

The natural process of population migration from agriculture (which occurred in all economically developed countries) was, in the 1970's, to a small degree related to the concentration of land and production in peasant farms. At the same time, on many farms, particularly on those where the farmers were older, there was a shortage of labor. These phenomena were also related to an inadequate flow of technical equipment to the peasant farms. As a result, land fell out of private farming and was then managed in an extensive way by units of the socialized economy. There was a distinct preferential assignment of land to the socialized economy, including the formation of new production cooperatives on lands obtained from the State Land Fund, with a minimal participation of farmers in land shares, despite the growing demand for land on the part of private farms.

The shift of land use and production to the socialized economy, whose final production was more than twice as fixed-asset-and materials-intensive, meant that production resources had to be used as a substitute for a work force, at the expense of using them to increase the rate of growth of production in private peasant farming.

The development of animal breeding in the private economy was disrupted. The decline in an interest in raising pigs and dairy cows, which occurred in small, peasant-worker farms after 1974, was the result of a deepening disproportion between the growing earnings outside of farming and the shrinking incomes for a unit of animal production; the unchanging retail prices of animal-derived food products while costs of producing these products on the farm increased; the lack of general market balance, and the inflationary processes, which caused a decline in interest in small earnings or incomes, for that is all that matters in small-scale production.

At the same time, a not-always-rational specialization of private farms was being developed, a specialization based on a concentration of animal production which exceeded the fodder availability on the farms, and animal-raising in the socialized economy, i.e., forms of raising which were much more grain-intensive and often wasteful. All inefficient actions in the management of land, with limited resources, reduced the growth rate of both animal production and net final production, in comparison with what could have been obtained had disruptions not taken place while fodder imports increased greatly at the same time.

Disruptions in the growth of farm production, caused by faulty functioning in the non-agricultural sphere and by disturbances of balance in the national economy, are related to the below-described phenomena.

Shortages of raw materials, energy, and other materials, make it necessary to drastically select and reduce investments, thus also reducing the rate of growth of manufacture of products particularly important for the development of the entire economy and agriculture (machinery, fertilizers, building materials).

The severe lack of balance in foreign trade reduces materials supply, import of new technology and spare parts. This state makes it necessary to export a number of scarce products, which also has an adverse effect on the development of agricultural production (export of fertilizers, while grain is being imported, may deepen strains in the successive cycles of production).

The lack of transport capabilities makes it difficult for the economy to function and to service agriculture (delays in pickup of slaughter animals, disruptions in transports of fertilizers, etc.).

Shortages in supplies of materials and energy, and the growing gap in housing construction, compel very costly investments in industry, transport and construction, which compete strongly with the needs of agriculture, while the possibilities of increasing the total sum of investment outlays are very limited.

The serious imbalance between the supply of goods and services and the money supply puts a very severe limitation on the policy of growth of real incomes and increases in employment outside of agriculture.

The negative effects of the phenomena described are intensified by the fact that they all appear at the same time, by poor product quality, and by glaring neglect in the functioning of trade and service enterprises.

The serious obstacles to an increase in deliveries of production resources to agriculture occurred simultaneously with the growing imbalance on the consumer-goods and food-products market--goods and products also purchased by the farming population. This caused a disproportion between the amount of money in the village and the amount of goods offered to it. In this situation, the organs of local administration and the trade units themselves applied a system of distribution of many means of production. Rationing is an evil necessity in a situation of severe shortages, however it always reduces the effectiveness of utilization of production resources and complicates the production process (time is lost in attempting to obtain production resources). It also provokes a number of known, negative, social phenomena.

All of the above phenomena weaken the role of money, prices and credits, whose effectiveness in controlling the production of private farms has been confirmed time and again. The substitution of administrative methods for economic instruments has always had a very adverse effect on the development of private farming, because these are methods which conflict with the "nature" of farms. Administrative organs also interfere with the flow of products between regions, stimulating "parochialist" tendencies, and severing the historically formed coproduction ties among farm producers, small industrial plants, and local markets.

Along with the unfavorable phenomena, which pertained directly to private farming and were caused mainly by shortages of supplies (market imbalance), some not-always rational investments and material-intensive production was undertaken in the socialized agriculture sector. This activity is not adequately supervised by an efficient economic and financial system. On the contrary, the lack of economic criteria (thriftiness) in making investment and production decisions in an attempt to increase animal production at any cost in the socialized sector, intensified. As a result, the shift of concentrated feed to the socialized sector reduced the possibility of an increase in animal production in the private economy.

Pushing the development of animal production in sectors of the socialized economy (combined with institutional fattening) was responsible for the fact that during 1975-1979 about 2.5 million pigs were shifted from private to socialized farming. This meant the elimination from pig-raising of those producers with the lowest grain-intensiveness of slaughter-animal production (because the drop occurred on the smallest farms) in favor of producers with the highest grain-intensiveness. This carried with it an increase in the consumption of concentrated feed, and also in imports of grain and fodder.

All proposals for changes concerning the development of agriculture must be organically related to the preconditions and limitations dictated by the country's general economic situation.

At present, agriculture's share in the country's total amount of industrial production does not exceed 5 percent, while in the developed countries where the level of agriculture is high, this share is 15 percent.

The general national economic situation, and in particular the direct and indirect requirements of housing construction and also problems in transport and raw materials and energy supplies, will not allow, in the near future, a commitment of industrial potential in the country for the production of resources for agriculture and the entire food economy, which would fully meet the needs. Nevertheless, even under the present difficult economic conditions, it is essential that industry be converted toward supplying agriculture to a degree that would ensure that by the end of the 1980's, agriculture's share in the country's total industrial production would be doubled. This is an indispensable condition for both improvement in the population's standard of nutrition as well as in the attainment of the country's complete self-sufficiency insofar as food is concerned (equilibrium in the balance of foreign trade in agro-food products).

The market imbalance, the housing "gap" in the cities, the inadequately developed urban infrastructure, which is accompanied at the same time by very serious employment surpluses in all nonfarming sectors, and particularly in the economic administration, will dictate a reduction in the growth rate of employment in the nonfarming sector. That is why, despite the transition from the high to the low of a demographic increase in labor force reserves, we should count on the possibility of a rather moderate drop in agricultural employment. Such a prediction is enhanced by the existence of very large and unutilized modernization potential, which in a way that is relatively the cheapest and without an increase in employment, can increase production in many areas of the nonfarming sector.

In view of the described overall-economic preconditions, the factor that will restrict the development of agriculture will be the rather slow flow of production resources directed to agriculture. That is why the allocation of these resources must be such that it will serve to increase agricultural production rather than be a substitute for a workforce. This pertains especially to the very capital-intensive and materials-intensive directions of production, particularly animal, in the sectors of the socialized economy. Naturally, the growth tendency of farm-production capital-intensiveness and materials-intensiveness is an objective phenomena. Regardless of the variant of employment growth in the nonfarming sector, employment in the peasant sector will obviously drop, and the young generation of farmers will not want to apply a number of today's techniques which, although they are, in fact, capital- and materials-saving, are often in deep conflict with the justified aspirations of a young generation of farmers, insofar as working conditions are concerned. Both these causes--substitution for decreasing employment and the necessity to change working conditions--must cause a gradual increase in capital-intensiveness of production in private peasant farming.

Farm policy should give preference to land management, assumption of the land from the aging farmers, principally by the peasant sector. In addition, these activites must be accomplished on the broadest possible front. Aside from creating 15- or 20-hectare farms, everything must be done at the same time to make it as easy as possible for peasant farms of 7 to 10 hectares to be put under full cultivation, remembering that the processes of putting small farms into full use are the least costly investment processes.

These activities must be based on utilization of a loan policy and a system of pensions, which must be subjected to continuous analysis and evolution so that they can be made efficient instruments for improving the effectiveness of the processes of transformation in land management.

Even if the most favorable conditions are created for managing the land by the private sector, a certain amount of the released land will be taken over by the socialized sector. However, in order that the process of the flow of land to the socialized sector not halt the growth of production in all of agriculture, this flow should be held to a minimum. Furthermore, there should be no takeover of land that is far removed from economic centers, located in the midst of peasant lands, and the existing enclaves of areas of socialized farms located in the middle of peasant complexes, should be liquidated, transferring (selling) them to private farmers. The very inefficient forms of taking over land by agricultural circle cooperatives should be totally eliminated, and in organizing new production cooperatives the rule should be that farmers with shares of land must comprise at least 70-80 percent of the member-organizers. Action should be taken to greatly increase the productivity of the land and the means of production in the state farms and farm production cooperatives.

Improvement in productivity and effectiveness in the state sector will require drastic changes in the entire management and planning system, revision of organizational concepts (the mania for largeness), and revision of a number of technological concepts which are not totally adapted to farming conditions, our country's current economic situation[2] and high marginal energy costs[3]. Regardless of these changes, however, a change in the present management system is also indispensable. The present system provides for an almost pathological crop structure, in which grain's share does not exceed 43 percent and total grain production from 1 hectare of cropland--despite higher yields (which are the result of doubling the mineral fertilization)--is several percent lower in comparison with private farming. Low grain production is clearly out of accord with the grain-intensive technology of animal production, for the consumption of concentrated fodder per unit of animal production is almost 50 percent higher than in private farming. As a result, despite the considerably higher additional net purchase of concentrated fodder, the level of net animal production from 1 hectare of cropland is about one-fourth below the level of private farming.

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[2] This unadaptability is due to the fact that these technologies appeared during a period of abundant energy in a country (the United States) where until recently energy was cheap.

[3] An increase in energy production, obtained by way of a very costly increase in coal extraction and a very costly, for us, increase in imports of petroleum from capitalist countries (the very high domestic cost of obtaining a marginal dollar).

The management system in the state agriculture sector should be changed so as to increase the share of grain in the crop structure and to establish a structure and level of animal production that will produce large surpluses of commodity grains. A reduction in the growth of the excessive grain-intensiveness of animal production on the state farms and also in the remaining socialized sectors, would allow for more concentrated fodder to private producers, who, from the same amount of fodder can produce more animal products. This would be one factor in reducing the growth of animal-production grain intensiveness on the national scale, thus improving the growth in animal production.

The general national situation requires that such directions of production, particularly the structure of animal production, and such production technologies should be selected that bring high food production from a unit of acreage and economical consumption of production resources.

In order to increase meat production from one unit of cropland and to minimize the unit consumption of fodder, the policy in establishing the proportion of the development of beef and pork production should favor the latter. With today's proportions of yields of fodder on arable lands for both kinds of animals, the production of pork per 1 hectare is higher than beef production. This policy can be implemented through a proper relationship in the prices of pork slaughter animals and beef slaughter animals and through the structure of investment in farm building construction and fodder management.

In applying priorities in loans and deliveries of materials, investments should be stimulated that best conserve fodder and decrease losses in storage of farm products. Progress in the field of production of preservatives for fodder and other crops can help in this task.

Changes in the structure of crop production, especially the structure of fodder reserves in state farms, should give priority of savings in fuel and energy as a whole, which may make it necessary to limit application of excessively energy-intensive technologies that may, with current costs of obtaining fuel, produce foreign-exchange losses in the national economy.

The import structure should ensure that fodder reserves will be supplemented by the protein components that are indispensable in utilizing the production potential for pigs and poultry and in improving the effectiveness of the consumption of domestic fodder. At the same time, byproducts of the processing industry should be used to a greater degree and agriculture should be supplied with the chemical components of fodder, together with amino acids.

In the farm machinery industry, priority should be given to advancements in the production of machinery that is particularly effective from the standpoint of an increase in yields (e.g., new generations of fertilizer spreaders and distributors) and machinery which increases the degree of crop utilization (e.g., pickup chaff cutters that pulverize the crop mass, etc.). In selecting technical solutions, economical consumption of production resources, especially energy, should be considered.

Policies on prices, loans, planning the structure of production in agriculture and production resources, and the policies on importing licenses and ready production resources for agriculture, should be oriented towards giving priority to these kinds of production. These same premises should be considered in creating economic incentives in the socialized economy's economic and financial system.

The basic element of changes in the economic development of farm production should be the restoration of economic balance and the strenthening of the role of money in economic ties between the village and the city, and between agriculture and the rest of the economy. Income policy as it relates to peasant farms and the policy of supplies to the village market, should be subordinated to this task. This means that in view of the serious disproportion between the commodity bulk remaining at the disposal of the village and its monetary resources, improvement in the farmers' material situation and an increase in the peasant farms' investment potential should be accomplished by increasing deliveries of production resources and consumption articles for the market.

In view of the country's general economic situation, making it necessary to slow the rate of growth of nonfarming employment, the increase in village incomes through a drop in farm employment will not play too large a role during the 1980's. That is why it is even more important to ensure technical and organizational progress in the private economy, making it possible to maintain the highest possible farm production rate from a unit of acreage. To implement such a policy, in view of the modest growth in production of a number of commodities designated for the village market, the present restrictions in nonfarming investment construction should be taken advantage of. Furthermore, steps should be taken to improve production efficiency in the socialized economy (for example, improvements in the effectiveness of mineral fertilizers and commercial fodder), which should make it possible to increase the private economy's share of production resources for agriculture. In accomplishing this task, the export of nitrogen fertilizers should be discontinued in order to correspondingly increase the domestic market supplies.

If the role of money is to be strengthened, besides accelerating the rate of deliveries of production resources for the market, a very prudent pricing policy should be conducted which would act to strengthen market balance and make it possible to gradually abandon the practice of distributing production resources to the farmers, a distribution that is burdensome to the farmers and inhibits the growth of production. One of the conditions for the effective conduct of this policy is the application of strict discipline regarding those prices in state procurement that are established centrally. This will require, among other things, standardization of procurement prices for slaughter animals in all forms (in state procurement and within the framework of coproduction among farming sectors). The conduct of this policy cannot, of course, be limited exclusively to the policy of procurement prices and credits, but it must apply also to wage policy in the nonfarming sector and to a pricing policy which would initiate the gradual restoration of balance, total and partial, to all markets.

Where the possibilities of increases in farmers' real incomes are limited, measures that improve the quality of the farmers' lives should take on a special importance. These measures may give results at relatively low financial outlays by the state.

First place should go to the undertakings that improve the supply of water to the village. These are financed by the farmers themselves and can produce dual results--a production result and an improvement in living standards.

Among the undertakings that at relatively low outlays can reduce the time-intensiveness of farm production, improvements in the network and functioning of procurement and supply to agriculture should be mentioned. This applies also to the development of services and crafts which, if they were able to obtain the necessary material supplies, could make use of the villages' workforce reserves which developed as a result of reduction in employment in industry. The time-intensiveness of farm production can also be reduced by all the undertakings that strengthen the role of money in relation to commodities between the village and the city, gradually eliminating the distribution of production resources that is burdensome to the farmers.

In the group of ventures that improve living standards in the village we should also include all resources that reduce the differences in living and working conditions between the village and the city. These include an improvement in the operation of the State Motor Transport network (very high efficiency in relation to costs) and the conduct of a policy that will give priority to the village population in the allocation of vehicles, which, in the village, not only play a very important civilizing role, but are also important for production.

4. The Demand for Food to 1980 [probably should be 1990] and Agriculture's Production Capability

In view of the fact that the demand for crop-derived food products indicates a small growth tendency (approximately 0.8-0.9 percent average annually), the demand for animal products is of fundamental importance from the standpoint of agriculture's production potential. In order to reduce the individual animal products to a common denominator, we are considering them in conversion units of meat (1 kg meat and animal fat = 1 kg eggs = 6.7 liters of milk). Taking as a base the standards of consumption of animal products in 1990, according to the 1974 program of the PZPR Central Committee's Fifteenth Plenum, only those standards pertaining to milk consumption were revised (which was discussed earlier). The demand for animal products in 1990, in comparison with actual consumption and production in 1978, appears to be as shown in the table below [see next page].

An assessment of the growth potential of animal production in the 1980's will require a retrospective examination of past developmental trends, and the correctness and interdependence of the factors that determined this development. Although it is true that not all of the proprieties and interdependencies appearing in the past can be applied directly to the future, nevertheless by knowing all of the factors

Consumption per 1 inhabitant (in kg)	1978	1990
Meat	70.6	85-90
Milk	65.5	75-70
Eggs	12.2	15
Animal fats	8.4	7
Total	156.4	182
Population (in millions)	35.0	39.1
Total consumption (in thousand tons)	5,474	7,120
Production (in thousand tons)[4]	6,126	7,920

which up to now influenced changes in these trends, we can predict their change in the future and also provide the sources of influence which would allow these changes to proceed in the desired direction.

The basic factor in the development of agriculture and the growth of farm production is the development of the entire national economy, and thus the potential of supplying agriculture with production resources. In examining the growth rate of farm production during the past 30 years, we see its close relationship with the growth rate of the national economy as a whole. During periods of rapid economic development, farm production[5] also grew rapidly, and vice versa.

The weakening in the country's economic growth rate in the second half of the 1970's not only reduced the past rate of inflow of turnover production resources for agriculture (from 10.3 percent annually during 1971-1975 to 4.6 percent annually during 1976-1979), but it means also that this rate during the next 5 years will be lower than the previous assumptions, on which the program for feeding the country's population, approved by the PZPR Central Committee's Fifteen Plenum in 1974, was based. This is shown in the mineral fertilizers supplied to agriculture, which in 1985 are to total 250 kg NPK [nitrogen-phosphorous-potassium] per 1 hectare, against the initially planned 300 kg. This will, of course, have a bearing on the size of the yields and harvests of cultivated crops, and thus also on the potential of an inccrease in animal production.

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[4] The difference between production and consumption is made up of: milk used for feeder purposes, eggs for hatching, export (net) of animal items, wool production, fats for technical purposes, and increase in animal herds. The increase in this difference from 650,000 tons in 1978 to 800,000 tons in 1990 is due to the need to eliminate the import of animal products, which took place in 1978 (about 70,000 tons of conversion meat) and an increase in their export to improve the balance of foreign trade in agro-food articles.

[5] With the exception of the period of the 6-year plan, in which the increased industrial growth was accompanied by a stagnation in farm production, both as a result of services to agriculture for industrialization purposes as well as the policy of collectivization.

Past growth in animal production during specific periods was as follows (in thousand tons converted to meat):

	1950	1970	1975	1979
Total production	2,916	4,631	5,918	6,114
Average annual increases	--	86	257	49

During the 1971-1975 5-year period, average annual increases in animal production were three times higher than in the previous 20 years. This made it possible to both increase export of animal products and to considerably accelerate the growth of consumption. And so during 1951-1970, consumption of animal products per 1 inhabitant increased by 40 conversion kg (from 89 to 129 kg), i.e., it increased an average of 2 kg annually. During the 1971-1975 5-year period, this consumption increased by 23 kg (to 152 kg), thus it rose 4.6 kg annually.

Such a large acceleration in growth of production and consumption of animal articles, achieved due to an exceptionally favorable situation in the production of grain and higher imports of grain and fodder, became one of the main causes of strains in the grain-fodder balance in the current 5-year period.

It is obvious, of course, that the growth of crop production does not proceed linearly, that there are years and periods of high increases in production as well as drops. And so after a period of high increases in grain production during 1971-1974, it declined in the following years. On the one hand, this was the result of bad weather conditions for grain production (three years of crop failures--1975, 1977 and 1979), and on the other hand it was the result of large delays in implementing the mineral fertilization program.

The drop in grain production and the small increase in harvests of the remaining crops in the current 5-year period, while animal production was at a high level, caused large shortages in the grain-fodder balance. Under these circumstances, two solutions were possible: reduce animal production and adapt it to the lower fodder reserves, or--to prevent a drop in consumption of animal products per 1 inhabitant in the face of an annual population increase of approximately 300,000--supplement the fodder shortages by a further increase in imports of grain and fodder. Acceptance of the second solution made it possible to increase animal production, and with the simultaneous reduction in net exports of animal products the consumption of animal products per 1 inhabitant was also increased, but this increase was only the result of an increase in imports of grain and fodder, from 4.9 million tons in 1975 to 8.6 million tons in 1979. The social costs of this increase are shown in the progressive growth of the negative balance of foreign trade in farm-food articles. Because the negative balance of food imports is not compensated by a positive balance of exports of commodities produced by the remaining sectors of the national economy, the growth and consumption of animal products is to a large degree at the expense of an increase in the national debt. If payments on the indebtedness are to be made, a positive balance in all of the country's foreign trade must be attained and the balance in import and export of agro-food products must be equalized. This will require a reduction in imports of grain and fodder, because payment for these imports at the present level of expenditures (over 1.2 billion dollars in 1979) out of revenues from a larger export of farm-derived products, is out of the question.

Aside from the effects of the economic acceleration of animal production based on imported grain and fodder, the production effects are no less important for agriculture's future development. These effects are shown in the loss of agriculture's production balance, i.e., in the growing disproportion between crop and animal production, and in the basically irreversible change in animal-feeding technology. This change is based on a growing grain-intensiveness of animal production. Thus the consumption of concentrated fodder per unit of animal production during the last 10 years increased an average of 4.8 percent annually, i.e., over twice as fast as during the previous 20-year period (2.1 percent). This increase was especially high during the current 5-year period, during which concentrated fodder's share in the total increase of fodder for production stock reached 97 percent.

At the present time we have reached such a high level of grain-intensiveness of animal production (3.17 kg concentrated fodder per 1 conversion kg animal production, 1978-1979), that unless it is radically slowed down, no further growth in animal production is possible, especially under conditions where grain and fodder imports must be reduced. The increase in the domestic production of grain must not only fill the gap that results from reductions in imports, it must also ensure that there will be fodder for an increase in animal production.

Higher grain production will depend on both higher yields and larger areas of croplands. Higher yields are determined primarily by more mineral fertilization. At the assumed increase in mineral fertilization, in 1985 grain yields will not exceed 31 quintals, and in 1990, 34 quintals from 1 hectare. If the grain-sowing lands are increased from the present 7.9 million hectares to 8.3 million hectares in the 1980's, total grain production in 1985 would be 25.7, and in 1990, 28.2 million tons. If we consider that during 1976-1979 actual outlays of grain for feed and other purposes were 27.8 million tons annually (20 million tons from domestic production and 7.8 million tons from import), then the rather optimistic figures cited above concerning the growth potential in grain production in the next 10-year period reveal show difficult it will be to equalize grain-fodder balance while, at the same time, reducing grain and fodder imports and increasing animal production.

It is estimated that if present grain and fodder imports are reduced by one-third (expressed in terms of value) and exports of farm products, including animal, are increased, then it will be possible in the 1980's to equalize the balance of foreign trade in agro-food products (at 1979 world-market price ratios).

At the assumptions given pertaining to growth in grain production, reduction in grain and fodder imports, maintaining animal production at its present level, and a general improvement in fodder feeding effectiveness, the growth potential of animal production up to 1985 does not exceed 6.7 million tons, and up to 1990, 7.4 million conversion tons.

Thus the level of animal production in 1990 will be about 7 percent lower than projected in the PZPR Central Committee's Fifteenth Plenum 1974 program. This program turned out to be too ambitious, for it was based on an assessment of the country's economic-production situation at that time (rapid growth of the entire national economy, including also farm production, as well as an economic conditions on world markets. The implementation of this program, therefore, must be postponed to the late 1990's.

If, however, the growth in animal production forecast to 1990 is not examined from the standpoint of our requirements and aspirations, but from the standpont of objective developmental processes in agriculture, i.e., in the light of long-range trends, than it can be said that it does not look bad, especially in view of the country's economic situation which compels it to reduce grain and fodder imports. The rate of animal production growth in the entire 20-year period, 1971-1990, despite large fluctuations in specific periods, will be identical to that in the 1951-1970 20-year period, amounting to about 2.3 percent annual average. The same growth rate in both periods obviously means that there were considerably higher quantitative increases in the second period. Thus, in the previous 20-year period the average annual increases in animal production were 86,000 conversion tons, and in the current 20-year period they will be 138,000 tons.

The higher increase in animal production shown above would ensure, in the next 10 years, a growth in consumption of animal products per 1 inhabitant to approximately 169 conversion kg in 1990. This consumption would be 13 kg lower than the assumptions of the PZPR Central Committee's Fifteenth Plenum (182 kg) and 11 kg higher than the present level of consumption (158 conversion kg in 1979). It should be stressed, however, that the whole consumption increase would not occur until the second half of the 1980's.

The relatively small increase in consumption of animal foods per 1 inhabitant within the next 10 years is the direct consequence of its rapid acceleration during 1971-1975. In total, during the 1971-1990 20-year period, the consumption of animal products may increase by 40 conversion kg, i.e., the same as during the 1951-1970 20-year period, except, however, that in this 20-year period 23 kg of this increase was not implemented in 11-12 years, but in 5 years (1971-1975).

The increase in the production and consumption of animal foods in the first half of the 1970's, which surpassed the trend by 6-7 years due to the rapidly increasing sizes of the grain harvests and higher imports of grain and fodder, made it very difficult for animal production to grow in the following years, during which the increase in production was obtained only at the expense of imported fodder. Imported fodder, during the second half of the 1970's, made up about 40 percent of the concentrated fodder fed to the production stock. As a result, changes in animal feeding technology were so accelerated that they greatly surpassed the stage of crop production development, including also grain production, that had been achieved. The effect of this acceleration was lower potential for further growth in animal production, especially to 1985, than if this growth in the 1970's had been adapted to an increase in domestic fodder reserves, supplemented by only a gradual increase in fodder and grain imports. As early as the second half of the 1970's, animal production grain-intensiveness had reached a level, which at a balanced growth rate of animal and crop production should not have been reached until late in the 1980's.

Thus the acceleration, in relation to the trend, of animal production and animal product consumption in the 1970's, despite the fact that we paid a very high price for it in the form of national indebtedness, was only a temporary phenomenon, for the later slower growth in animal production meant a gradual return to the initial trend. But the national economy was not strong enough to preserve what had already been accomplished by the acceleration or increase production further. This would have been possible only if the level of industrial development had been such as to ensure, on the one hand, an adequate and steady flow of production resources for agriculture, and, on the other hand, financing of fodder imports from export revenues.

5. Final Comments[6]

The above assessment of farm production growth potential indicates that despite the rather optimistic assumptions on higher yields and harvests, improvements in fodder feeding effectiveness and a radical deceleration in the continued increase in grain-intensiveness of animal production, an increase in the latter, at the projected fodder imports and animal-product exports, will scarcely ensure that the present level of animal-product consumption per 1 inhabitant will be maintained to 1985, while the increase in consumption to 1990 will amount to hardly 8 percent and will be about 7 percent below the level projected in the PZPR Central Committee's Fifteenth Plenum program of 1974.

In the light of this estimate the question arises as to whether there really is no possibility for a growth in farm production which would ensure a more rapid and higher increase in animal-product consumper per 1 inhabitant. In my opinion, it is possible, on condition, however, that the conversion of industry in favor of a share of production resources for agriculture and the food economy is accelerated, that the gap between retail prices and procurement prices of farm products is eliminated (which would reactivate production in small farms of two-job [agricultural and non-agricultural] holders) and that far greater changes in the strategy of agriculture development are made than was proposed in the professional report.

Examples from the postwar history of our agriculture show what a tremendous influence favorable changes in farm policy after 1956 and 1970 were in stimulating production in the private peasant economy. A change in present farm policy, recognition of the family farm as a permanent element of the socialist system, acknowledgment of the priority of private farmers in obtaining State Land Fund lands, change in the present formula of an equal growth rate of incomes to a formula of equalizing the incomes of the farming and nonfarming populations, an increase in supplies of production resources (by intersector reallocation, among other measures), and also reactivation of village self-governments--will make it possible to accelerate farm production in the peasant economy.

The socialized economy has a far greater reserve of potential for increased farm production from a unit of acreage than the peasant economy. This economy now occupies 25 percent of the arable land, so it has an important influence--unfortunately, in the negative sense thus far--on the production results of all of agriculture.

If, during the course of the next 10-year period, the present difference in land productivity between the socialized sector and the private sector could be reduced only by one-half, then the increase in animal-product consumption per 1 inhabitant would amount to at least 10 kg (conversion).

This confirms the following calculation, which is based on 1979 results. In the socialized economy, grain production is 12 percent lower from 1 hectare of cropland than in the private economy, and consumption of concentrated fodder by the producer livestock is 25 percent higher. Animal production is 15 percent lower, which

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[6] These are the author's personal comments and reflections in the light of the assessment of farm-production growth potential contained in the discussed professional report.

which, of course, is the result of a 48 percent higher grain-intensiveness of animal production. The final net crop production is also in the minus column, whereas in the private economy it is plus (it constitutes 20 percent of the crops), despite the fact that about 10 percent of the crops are earmarked for fodder for horses (in the socialized sector, only 1 percent of the crops).

Animal production in the socialized economy is not only more grain-intensive but also more land-intensive than in the private economy. In the private economy, 66 percent of the cropland area is given over to fodder for producer livestock, while in the socialized economy the figure is 94 percent.

In the private economy, 509 conversion kg of animal products are obtained from 1 hectare of fodder acreage, compared to 302 kg in the socialized economy.

Such large differences in animal production from 1 hectare of fodder acreage are the result of both the lower level of crops from 1 hectare of arable land, which is due to the more extensive crop structure, as well as the much lower economic efficiency of feeding.

The value of the fodder consumed for 1 conversion kg of animal production was 3.75 zlotys on the private farms, and 4.96 zlotys on the socialized farms. The 32 percent higher value of consumed fodder for 1 conversion kg of animal production in sectors of the socialized economy is due in part to the higher share of beef slaughter animals in the animal production. This requires double the amount of fodder per unit of final product (meat), as compared to the remaining animal products. The share of beef slaughter animals in the private economy is about 12 percent (in conversion units of meat), compared to 21 percent in the socialized economy, and over 23 percent on the state farms.

Lower crops from 1 hectare of arable land and lower economic effectiveness of feeding mean that socialized farms obtain barely 59 percent of animal production from 1 hectare of fodder area, as compared to the private economy. If productivity of this fodder area were the same as in the peasant economy, we could, on the national scale--at present imports of grain and fodder--obtain 850,000 tons more of animal products, i.e., 24 kg per 1 inhabitant, or we could reduce fodder imports by two-thirds with the same animal production.

It should be stated here that during the past 4 years a regress has occurred in the socialized economy in the productivity of the fodder land (by 13 percent), whereas productivity rose 5 percent in the private economy. One reason for this was the 22 percent increase in the area of the socialized economy, but the main cause of the worsening production and economic figures lies in the economic and financial system and in the directive-type system of managing the socialized economy. and also in removing this economy from any kind of evaluation from the standpoint of economic cost-effectiveness and principles of efficient management. The present economic and financial system creates a situation in which the individual production units strive to increase production at any price, without taking costs into account.

Depriving the enterprises of the freedom to choose the production structure and to make most of the production decisions, causes disturbances in the development of individual sections and branches of farm production, and causes activities to be undertaken which were unprofitable from the beginning or were inefficient from the standpoint of agricultural engineering or animal husbandry.

This leads also to relieving the management and staffs of enterprises of responsibility for production and economic results. On the other hand, however, the directive-order system is often ineffective in matters that are crucial to the development of agriculture, which is shown, for example, by the lack of positive results of action taken to increase grain's share in the total crop areas in the socialized economy.

Deceleration, followed by reversal, of the unfavorable, thus far, tendencies, is not only theoretically possible, it is entirely realistic in a relatively short time. There are no objective causes inherent in the socialist system of management which would foredoom the achievement of the same or even much better production and economic results as in the private peasant economy. On the contrary, it is precisely the small-producers' economy which encounters many technological and economic barriers to its development, barriers that do not exist in the large-producers' socialized economy.

A positive example of the socialized economy's potential were the production and economic results, no worse than in the private economy, in the farm production cooperatives during the first half of the 1970's. i.e., before they were transformed into parastate enterprises with all of the faults of the system existing in the State Farms.

An improvement in the production and economic situation in sectors of the socialized economy depends on basic organizational and economic changes, i.e., granting full independence to the enterprises in making production and investment decisions and in conducting an economic and financial system that would force an improvement in management efficiency.

In order to create conditions that are more conducive to improving management efficiency in the socialized sector, the takeover and management of new lands should be reduced to a minimum, i.e., to those cases only where there really are no buyers for the land on the part of the private farmers.

Minimizing the further growth of the area covered by the socialized economy in the next five-year period would also make it possible to allocate production resources in agriculture more efficiently. A large part of the outlays of investment and turnover funds assigned to agriculture were earmarked for developing the lands taken from the peasant economy by the socialized sector. These, therefore, were outlays for changing the forms of ownership in agriculture, and their production effect over all of agriculture was slight (and often simply negative).

Outlays that have been earmarked in the past for take-over of land by the socialized sector can be used to better equip both the private peasant farms and the existing socialized farms. This would allow for a greater growth of production in agriculture as a whole, and also in consumption of animal products per 1 inhabitant, than if the present policy on the intersector transfer of land is continued.

A reduction in the quantitative development of the socialized economy in the next 10-year period would make it possible to apply the resources and efforts to its qualitative development and to substantially improve production and economic results.

A reduction in the flow of land to the socialized economy will also make it possible to better meet the growing demand for land, particularly on the part of young farmers, and by doing so, it will make a more meaningful improvement in the agrarian structure, which is one of the prerequisites for technical modernization and growth in labor productivity and incomes in the private peasant economy.

Period for 1981-1985

Warsaw PRZEMYSL SPOZYWCZY in Polish (2-part article) No 5-6, 1981 pp 163-165 and No 7-8, 1981 pp 223-225

[Article by Kazimierz Placzkiewicz: "Preliminary Assumptions of the Food Economy's Development During 1981-1985"]

[Text] 1. Agriculture

In the previous issue of PRZEMYSL SPOZYWCZY we reported on the meeting of the Scientific Council in the Ministry of Food Industry and Purchases devoted to an assessment of the preliminary assumptions of the food economy's development during 1981-1985.

To acquaint the readers with the basic assumptions of this report, we are presenting a discussion of the first part, dealing with the development of agriculture. Part 2 of the discussion, covering the preliminary assumptions of the food industry's development, will be published in the next issue of PRZEMYSL SPOZYWCZY. The editors would like to emphasize that the discussed assumptions are very preliminary. However, they constitute valuable material for the eventual establishment of the directions, scope and rate of development of the food economy at the current meeting with regard to the actual potential of the national economy and the priority assigned to activities that serve to improve the feeding of the nation.

The basic activities in agriculture for the years 1981 to 1985 were directed at finding a way out of the present difficult production situation and to create condition by which society's food requirements would be better met. The most urgent tasks in agriculture relate to deceleration of the decline in farm production, the accomplishment of indispensable changes in its structure, and the development of growth trends both in crop production and animal production.

During the past five-year period (1976-1980), due to poor weather conditions and a large shortage in production resources, only a small average annual increase in total farm production was achieved--2.9 percent, and in 1980 there was a steep drop in this production, 9.1 percent as compared to 1975 and 11.7 percent as compared to 1979.

The declining trend in total agriculture production was caused in part by the worsening results in crop production, including the particularly disastrous failures in basic farm crops in 1980. Converted to grain units, crop production in 1980 was even lower than in 1970. The regression in crop production was compensated by rapidly growing imports of grain and fodder, which increased from 5 million tons in 1975 to over 9 million tons in 1980. This made it possible to maintain a small growth trend in animal production until 1979, but at the same time it had an adverse effect on the balance of foreign trade in agro-food products and it reduced fodder reserves. It is estimatedthat in the last 5-year period, the entire increase in animal production was due to the increase in grain and fodder imports, and also the increase in consumption of animal products achieved principally due to imports.

The bad situation in animal production arose after the 1980 harvest, as a result of fodder failures and the inability to make up the shortage with increased imports. It should be stressed that the concept of the development of animal production based to a large degree on the import of grain and fodder, caused many negative phenomena, such as expansion of grain-intensive technologies in animal-feeding, which often led to low effectiveness of fodder utilization and the preferential allocation of outlays to growth of animal production, at the expense of crop production. Hence in the preliminary assumptions of agricultural development for 1981-1985, the principle that was approved was one that provided that the growth rate of crop production must always exceed that of animal production. The basic requisite for achieving a steady growth in farm production, and mainly crops, is a considerable increase in deliveries of commercial production resources. To improve land productivity, which was insufficient in the past 10-year period, the following measures are indispensable: first of all, an expansion of land reclamation works, an increase in consumption of chemical resources, and a higher degree of mechanization of farm jobs.

Land reclamation requirements are only about 60 percent satisfied and a considerable part of the existing reclamation installations are technically worn out and must be modernized. The reclamation inadequacies had an important bearing on production results in 1980. In order to fully meet the needs, the reclamation of 3.5 million hectares of arable land is indispensable. It is envisaged that in 1981-1985, a comprehensive reclamation of croplands is to be accomplished, covering at least 1 million hectares. Reclamation systems will be modernized on 200,000 hectares, and flood control levees, 900 km long, will be built.

The reduced fertility of the soil, caused by atmospheric precipitation, particularly in 1980, and the indispensability of increasing crop production, demands that in 1985 the level of fertilization must be at the rate of 250 kg NPK per hectare, compared to about 190 kg in the 1979-1980 season.

It should be said that the projection of such a large increase in fertilization was made necessary also by the delays which occurred in this field, since the level of fertilization during 1976-1980 did not increase, and in the private economy it even dropped slightly.

Aside from fertilization, it is essential that crop protection against disease and weeds be improved. To reduce the losses which agriculture suffers on this account, a large increase in consumption of plant protection agents (up to 2.5 kg/hectare is anticipated by 1985, as a result of the expansion in the domestic production of these agents. There is a great deal of space for improvement in the development of mechanization in agriculture. The present level of machinery and equipment production is very inadequate and with the population outflow from farming the growth of farm production is being inhibited. Under these conditions, it is essential that

that the domestic potential of farm machinery and equipment be expanded and that the present manufacturing capacity in the machine and heavy and farm machinery industry be applied to the most urgent needs of the farm economy.

The basic matter is the completion of the expansion of the tractor industry so as to achieve a production of 100,000 tractors annually and increase the amount and assortment of the associated equipment, mainly tilling and cultivating machines and machines for gathering and processing bulk fodder.

In order to solve the farm transport problem, in addition to the increase in tractors and trailers, an increase in hauling and delivery trucks is envisaged, plus an expansion in the production of machinery and equipment for mechanizing reloading jobs.

To reduce product losses during storage and maintenance, the continued construction of warehouses to receive grain gathered by harvesters, potato, fruit and vegetable storerooms, and silos, is essential. The expansion requires production of power and cooling equipment and spare parts.

In addition to better technical outfitting, it is essential that conditions be created so that this equipment can be used more efficiently, principally by developing overhaul-shop facilities. At present, due to the poor technical condition of these facilities and the low level of repair services, farming does not even make full use of the equipment it has.

In view of the shortage of technical resources and the insufficiently developed facilities, the improvement in quality and life of machines and equipment produced for agriculture was regarded as an important problem.

Despite the envisaged expansion of the capacity of the industry producing agricultural equipment, the farming needs defined as being indispensable for 1981-1985 can only be 70 percent satisfied. The supplying of agriculture and the village with water, electric power, fuel and construction materials, is also a very important factor in the development of farm production. A further development of village water-pipe networks is envisaged by 1985. These will supply water to all socialized farms and 17 percent of the private farms, as compared to 12 percent of the farms at present. It is estimated that ultimately about 60 percent of the farms should be supplied with water from the pipe system. Furthermore, the installation of private equipment for supplying farmsteads with water is expected to be expanded.

Farms now use 5.5 percent of the domestic consumption of electrical power and only 40 percent of the private farms have power available to them. It is urgent, therefore, that the availability of electrical power be expanded, for it increases labor productivity, reduces losses in animal raising, improves the effectiveness of fodder consumption, and improves the quality of production. The electrical energy consumption indicator in 1985 should be 500 kWh/hectare, compared with the present 450 kWh consumption on socialized farms and 260 kWh on private farms.

If the private farms are to be provided conditions that are conducive to the development of production, they must be supplied with larger deliveries of building materials, especially cement, lime, partition materials, and roofing materials, and the small ceramic plants should be reactivated. During 1981-1985, the shortage of fuel in farming, which is now estimated to be at least 1 million tons of coal, must be eliminated.

The effective utilization of increased supplies of commercial production resources and farming's technically expanded production base requires that the role and use of the biological factors in production growth be increased. Of leading importance here is seed production, which should provide new and valuable varieties of crops of higher yields, quality and resistance to disease and pests, and animal breeding, in which the genetic livestock population should be raised and the utility value improved.

In addition to increasing production resources, the creation of suitable economic conditions is an important element in the development of farm production, and particularly a correct system of farm prices. In connection with this, it is proposed that a price level be approved which would ensure more production and would create preferences for jobs in agriculture.

In parallel with the level of prices, internal price ratios should be determined for the individual sections and directions of production, e.g., fodder and slaughter animals, grain and concentrated feed, grain and potatoes. The changing of prices by "leaps" every few years should be discontinued and an active price policy should be introduced by applying a graduated system of farm prices. To replace the present procedures for changing prices, studies of the profitability of production will have to be made on a regular basis. Considering the peculiarities of farm production, price changes should be made once a year at a time that will allow the farmers to make appropriate production decisions.

A correct price policy, guaranteeing the profitability of production, will also have an effect on the application of other economic instruments, such as: subsidies, credit and taxes. The subsidy system would be directed primarily at supporting activities of the following type: farm education, scientific-research activity, applications activity, land development, improvement in water conditions, the power network, etc. Farm production, however, would not be subsidized. The credit system should perform a function other than the one it has heretofore, and this system should be above all an instrument to stimulate and control farm production, and not a form of subsidizing production. Demographic changes in the village, and particularly the drop in occupationally active people and the aging of the village population, will require new solutions in the practice of land management.

Action will be taken to improve the area structure of the private peasant farms, to reduce the allocation of lands for nonfarming purposes, and to recultivate and improve lands with low production potential. In order to improve the agrarian structure, measures will be taken to simplify the turnover of land between farmers, the takeover of lands from the State Land Fund by the farmers, use of credit, and tax reductions for the purchase and development of land. As the law on annuities and pensions is fully applied, approximately one-third of the farm owners will change in the next few years, which will make it possible to increase land productivity and enlarge the average area of private farms.

Some important tasks have been defined for farming science and education in the intensification of farm production. Research tasks conducted by ministerial units, agricultural academies, agricultural institutes, and the Polish Academy of Sciences, will concentrate on: better utilization of land and water, improvements in crop and animal production methods, and new processing and warehousing technologies.

The accepted assumptions pertaining to improvement in conditions for agricultural production development should ensure a 16.6 percent increase in total farm production by 1985, as compared with the average level of this production during 1976-1980. This figure includes a 19.1 percent increase in crop production and 13.6 percent increase in animal production. Due to the need to reduce grain imports, the main problem during 1981-1985 will be to improve the domestically produced fodder balance. In order to solve this problem, the share of grain in the crop structure is to be increased, and a yield increase of 30 quintals is envisaged. However, the acreage for potato cultivation and the less-productive fodder crops will be reduced. Commercial fodder production will be developed mainly in the form of high-protein concentrates, from which, based on local grain reserves, fodder mixtures will be prepared.

To ensure enough raw materials for the farm-food industry, the commercial crop acreage, particularly of sugar beets and oleaginous crops, will be increased.

Horticultural production must be further developed if the population's requirements for fruit and vegetables are to be met, exports increased and deliveries of raw materials to processing plants ensured. By 1985, vegetable production in relation to the average obtained during 1976-1979, should increase 29 percent, and fruit, 30 percent, principally through higher yields and more efficient utilization of plant acreages, greenhouses, tunnels, and mushroom-growing cellars.

It is envisaged that the present declining trends in hog and cattle raising should be halted and not until 1984 will a population level somewhat higher than in 1980 be achieved.

Thus the envisaged growth in population for 1985, in comparison with 1980, is relatively low and amounts to 2.8 percent in the cattle population and 5.5 percent in hogs. Despite this, the cow and sow population will not be rebuilt by 1985, which nevertheless should not limit the possibility of an expanded livestock reproduction.

The production of slaughter animals will increase 14.3 percent during the 5-year period, and the highest growth is envisaged in poultry (26.7 percent), and pork slaughter animals (19.8 percent), due to accelerated stock rotation.

Milk production will increase 9.8 percent strictly as a result of an increase in dairy cow productivity to 3,000 liters.

During 1981-1985, a further growth in sheep, fur animals, and fresh-water fish husbandry is envisaged.

The preliminary assumptions on the development of agriculture show a need for greater than heretofore participation of other sectors of the national economy in solving its basic problems. The achievement of the goals strived for by 1985 already requires that multidirectional and effective actions be undertaken to ensure the conditions for farm production growth. It is the farm results that will determine the development of the food industry and, as a consequence, the level and structure of food consumption during the period of the next few years.

2. Food Industry

The second basic element in the food economy complex, in addition to agriculture, is agro-food processing. The development of food products is dependent principally on the growth of farm production and on the expansion of the processing potential. During the past 5-year period, the development of the farming raw materials base was generally inadequate from the standpoint of the requirements of the food industry.

The supply of farm articles, as shown by the amounts in which they were procured, deviated very greatly from the amounts that were envisaged for this period. The very large deviations, amounting to about 25 percent, occurred in the procurement of farm crops. The average annual procurement in the basic groups of farm crops was as follows:

	Envisaged in thousand tons	Obtained in thousand tons	Percent
Grain	6,270	4,770	76.1
Oleaginous crops	920	620	67.4
Sugar beets	18,800	14,160	75.3
Potatoes	6,680	5,400	80.8
Fruits and vegetables	2,690	1,900	72.9

Because the procurement of farm raw materials was below the amounts envisaged, and as a result, the amounts processed by the food industry were lower, many market and export products could not be produced as planned. These included sugar, rapeseed oil, potato flour, fruit and vegetable products, food concentrates, and sugar products. The lower procurement of crop raw materials also made it necessary to increase imports of agro-food articles, which, as a result, intensified the unfavorable relationships between export and import in the food economy complex.

During 1976-1980, grain and fodder imports were greatly increased, which made it possible to maintain a relatively higher level of production and procurement of animal products than would have been possible with the domestic fodder base. Thus the procurement of basic animal products turned out to be more favorable than the procurement of crop raw materials, as compared with the amounts that had been envisaged.

The average annual procurement of animal products is shown below:

	Envisaged	Obtained	Percent
Slaughter animals, total (in thousand tons)	3,730	3,670	98.4
Including: pork	1,785	1,805	101.1
beef	1,400	1,300	92.9
poultry	378	394	104.2
Slaughter animals, (converted to meat)	2,480	2,475	99.8
Eggs (in millions)	3,300	3,135	95.0
Milk (in million liters)	9,880	9,695	98.1

The obtained level of procurement made it possible to increase, during the past 5-year period, the consumption of meat per 1 inhabitant by 3.7 kg (to 74 kg), and eggs by 13 (to 222) and to maintain consumption of animal fats at the 8.1 kg level.

During 1976-1980, as compared with the previous 5-year period, the growth in consumption of animal products, principally meat, slowed, and a downward trend appeared. As a result of a reduction in the animal population, the decline in meat consumption will occur already in 1981. The considerable increases in farm product procurement prices that went into effect this year and the assurance of economic priorities for the development of animal production, should increase interest in animal busbandry and consequently facilitate rapid rebuilding of the animal population.

In the preliminary assumptions for 1981-1985, it was decided that the food industry, as the purchaser of farm products, should actively participate in the development of the farming raw materials base, particularly in adapting its level and structure to the needs of agro-food processing. It was acknowledged that in order to ensure supplies of farming raw materials in the appropriate amounts and good quality, the activity of the industry should be concentrated foremost on developing the cooperation of the branch services with the associations of farm producers, on improving procurement efficiency, and on improving the grading and pricing of farm products. These activities and the envisaged growth in farm production--discussed in part 1--should make it possible to greatly increase the procurement of basic crop and animal products. It is envisaged that the average annual procurement during 1981-1985 should be higher than that obtained during the previous 5-year period, as follows: grain, by 35 percent; oleaginous, 27 percent; sugar beets, 12 percent; potatoes, 40 percent; and fruits and vegetables, 40 percent. The level of procurement of animal products in the individual years of 1981-1985, will basically follow the trends envisaged in the development of animal production, and, in the case of milk and egg procurement, the level will be the result of the increase in yield of this production. It is estimated that meat procurement in 1985 will be 13 percent higher than in 1980, milk, 20 percent, and eggs, 25 percent.

In addition to the increase in supplies of farming raw materials, an important factor in raising the level of food articles production is the systematic expansion and modernization of the processing potential. During the 1970's there was an important but uneven growth of production potential in agro-food processing. Investments were made principally in the meat, poultry and feed industry.

Some progress was made in freezing and cooling. Other branches, mainly dependent on crop raw materials facilities, continued to be underinvested and large shortages in processing capability are appearing in them. The incomplete implementation (only 78 percent) of the planned investment outlays for 1976-1980, had an important influence on this state of affairs. Considering the envisaged growth potential of farming raw materials and the food requirements to 1985, the development of processing capacity for the production of grain-flour products, bakery products, vegetable fats, dairy products, fruit and vegetable products, and consumable potato products, must be accelerated.

Thus, during 1981-1985, the production capacity of the following products will be increased as follows: flour, by 800,000 tons; bakery, by 700,000 tons; milk processing, by 2.1 billion liters; and margarine, by 90,000 tons. By 1985, a large increase is envisaged also in the production capacity in the poultry, sugar, refrigeration and fish industries, and further gradual expansion of processing capacity in the remaining branches of the food industry. Furthermore, more modernization of small plants is anticipated in order to better utilize the local raw materials and supply the local markets. The development of craft plants, principally in the bakery products industry, is also envisaged. An improvement in the quality of raw materials and finished products is dependent on the continued expansion of a refrigeration chain, especially in the dairy and fruit and vegetable industries.

Along with the growth in demand for farming raw materials, the conditions for procuring and storing must be improved by building elevators and cold storage rooms, installing driers and modernizing procurement centers. It is indispensable also that they be furnished transport means and reloading equipment.

The development of warehouse facilities is a very important task. These facilities should make it possible to reduce losses and shortages and to create indispensable reserves of such basic food products as meat, sugar, eggs, potato flour, spirit and tobacco [sic].

During 1981-1985, the food industry plants will requite increased supplies of machinery and equipment, since their present technical outfitting, especially the power equipment, is inadequate and obsolete. The domestic potential of machinery and equipment production for industry now covers hardly half the requirements.

The envisaged expansion of the machinery industry should greatly increase the coverage of these requirements by 1985. The present shortage of packages and packing materials is a burdensome problem for the food industry. The projected growth in production of highly processed food, technical improvements in consumption, and improvements in quality and appearance of products will increase the requirements of the food industry for all kinds of packages. It is estimated that during the current 5-year period, supplies of paper packages to satisfy requirements should increase about 60 percent, plastic containers by over 40 percent, glass, 30 percent, and metal, 20 percent. The envisaged growth in production of farming raw materials and the development of the processing capacity in the food industry should ensure a 15 to 20 percent increase in the production of food articles during 1981-1985.

During this period the development of food industry production will be aimed at improving the level and structure of consumption, and particularly at eliminating the strains which now appear on the food market. Increases in the following are envisaged:

--supplies of meat and meat products beginning with 1984, after a reduction during 1981-1983. In 1985, meat consumption may reach 75 kg, including 14 kg of poultry. Poultry production will increase at an even rate during the entire 5-year period;

--production of other articles in the animal-protein group, i.e., dairy products, whose consumption will increase from 260 to 270 liters, eggs (from 222 to 245), fish and their products to 8.2 kg, and also culinary and delicatessen products and food concentrates;

--production of fats, and especially vegetable fats and butter, which will ensure a growth in the consumption of all fats, calculated at 100 percent, from 21 to 22.5 kg;

--consumption of fruits and vegetables and their products in 1985 from 57 to 130 kg, respectively;

--carbohydrate products, on the assumption that there will be a small reduction in consumption of grain and potato products and an increase in sugar consumption.

The envisaged structure of consumption will require the active cooperation of industry in shaping consumption by providing the products in the appropriate quantities and quality. The application of a proper system of prices to food items will be an important factor in establishing a pattern of consumption.

Because the prices of many basic items remained constant for many years, there is now no relation between the level of prices and the current production costs. This has caused many negative phenomena, including the following:

--discontinuance of animal production in a large group of small farms, principally the two-job [agricultural and non-agricultural] farms,

--extreme, in relation to the development of the food industry, denaturalization of food consumption in the village and

--use of certain food articles for animal-feeding purposes.

Furthermore, disturbing the cohesion between prices and costs increases the annual subsidy for food production. Therefore, the level and relationship of prices of basic food products now in effect requires an overall adjustment. The envisaged growth in food articles production and the resulting level and structure of consumption are closely interconnected with the development of foreign-trade turnovers of agro-food articles.

Considering the indispensable requirements of the food complex, it is estimated that imports of raw and other materials from the second payments area [capitalist countries] in 1985 should not exceed the level reached in 1978, which in relation to 1980, means a reduction of about 25 percent.

However, a basic change in the structure of import will take place: grain imports will be reduced about 50 percent by 1985 and imports of other raw and other materials, as well as high-protein fodder ingredients will be expanded.

An indispensable prerequisite for the implementation of the envisaged improvement in the balance of foreign-trade turnovers with the second payments area is that, in addition to maintaining imports at the 1978 level, exports of farm-food articles, especially crop-derived commodities, must be increased.

Expansion of supplies of crop-derived items, as compared to their present share in export, is justified by the need to protect the level of meat consumption specified for 1985. The accepted assumptions on production of meat articles exclude the possibility of increasing exports beyond the present level. The preliminary assumptions on the development of the food economy, as presented, ensure a continued growth in the level of consumption of basic animal and plant products. If the food level that has been decided is to be achieved, investment outlays must be increased and all branches of industry participating in meeting the needs of the food complex must be harmoniously developed.

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ROMANIA

INTERNATIONAL CONFERENCE ON ENERGY HELD IN BUCHAREST

Bucharest REVISTA ROMANA DE STUDII INTERNATIONALE in Romanian Sep-Oct 81, No5,pp467-469

[Article by Daniel Daianu]

[Text] It is not an exaggeration when one feels that energy is a major test which mankind must pass in the 80's. The assertion is not pertinent in the sense of the relative reduction in the need for solving other world problems as, for example, stopping the course of arming and reducing military arsenals, but by the fact that in the world the problems of energy have better shaped the complicated texture of economic and political, military and strategic interests, have brought new power centers to the forefront, have vitalized the evolution of the configurations of relations of interdependence, particularly the dependence among states. Energy not only individualizes the past decade, being a world problem which is "growing," but has added a supplement of complexity to all the other elements comprising international life.

Thus, the initiative of the Romanian Marketing Association and the Association of InternationalLawand International Relations to organize a scientific discussion under the heading mentioned above was salutary and hailed. Held on 26 March 1981 in Bucharest at the headquarters of the Association of International Law and International Relations within the symposium with international participation entitled " nergy Conservation and International Cooperation," the roundtable was the occasion for a useful and productive exchange of opinions between Romanian specialists and the foreigners invited. Prof Calin Mihaileanu, director of the Central Institute for Energy Research, stressed that in the energy area the autarchic solutions are probably impossible more than costly; international collaboration is irreplaceable as is satisfying the requirement for equity among the partners. With regard to the development of international cooperation, only to the extent to which the approaches also will extend to the differentiated case of the developing countries, a comprehensive picture is to be obtained, one which facilitates formulating proper international strategies. These strategies must give great attention to and cover the multiple aspects of energy conservation.

The central importance of energy conservation for national strategies and those going beyond the state borders was emphasized by Frederic Romig from the Division for Energy of the United Nations Economic Commission for Europe. He pointed out that although energy has been in the commission's attention even in the period immediately following the war, only in recent years has there been a move to a complex and overall approach. In this regard, stressed were the establishment of a advisory group on problems of energy, initiating of an intense exchange of information on the requirement and demand for energy in the 1973-1978 interval in practically all the member countries and prognoses for the years 1990 and 2000.

Presenting the preliminary results of a study made by commission experts on the energy situation in 17 of its member countries, the study which proceeds from the measures adopted until now in the particular countries brought out that, at the overall level, by correlating the data and estimates from the national economic prognoses, the energy restrictions which should be felt by the states in mind would be very serious. Energy conservation is the single means for fulfilling the economic goals proposed, in turn involving considerable investments in new technologies and broad international cooperation.

Daniel Daianu from the Institute of Socialist Economics felt that energy has contributed a lot for the economics to dominate relations among states; politic economics has become the "big" policy while blending of the motivations (goals) and economic means with those of another kind is more and more intricate. The intensity of the competition for resources is ebb and flow of the imbalances in the world economy which in turn are the result of the mechanisms of interaction between the dominating areas and the dominated ones. The problem of supply has become more important than that of price in the conditions where bilateral arrangements prevail and privileged circuits occur. It is essential in improving relations between producers and consumers for the current structures of "confrontation" to be substituted by structures of cooperation.

In his speech, Dinu Dragomirescu from REVISTA ECONOMICA argued that the energy problem is what is called a "global" problem, in the sense that to a greater or lesser extent it affects all states, regardless of their level of development, degree of supply with natural resources or social-political system. Referring to the socialist countries, he stressed the special emphasis placed everywhere on broadening one's own energy base, on restructuring and diversifying the energy balance, directions of action which come out particularly if account is taken of the demand for intensive economic development in these countries.

A number of participants in the roundtable illustrated the way in which the consequences of the energy crisis at the world level are being felt at the national level and the paths for solving them. Imre Kovacs, head of the section of international relations for the Society of Energy Economists in Budapest, outlined the dimension of the energy problems confronting his country. He brought out that for Hungary energy conservation has become a strategic option, a primary component of any short-term development program as well as medium- or long-term program. In this regard, the Hungarian economist mentioned that in the coming period the growth rate for energy consumption is forecast to be less than that of the advance of the national income. Prof Willem van Gool of Rijks Utrecht University in the Netherlands remarked that the industrialized countries of western Europe have many common problems, the solution to which demand cooperation. It is the reasoning for which institutional forms have been established: within the Common Market and the International Energy Agency. Along with the efforts made at the international level, many decisions must be taken by each country separately. On one hand, political considerations require this, while, on the other, the differing energy situations make uniformity of measures actually impossible. When the Netherland's case is analyzed, one must not forget that it is a matter of an economy of an "open" market, with industrial structures of large proportions which consume much energy and with an energy-intensive agriculture. In conclusion, if a long-term analysis indicates the clear opportunities for solving the energy problems, for the short term this same analysis brings out the difficulties in achieving a balance between the needs for capital, for energy, the requirements for environmental protection and social requirements. The energy situation in the United States was presented by two of this country's guests. Edward Allen from the

Washington, D.C., office of the Associated Universities of Oak Ridge (Tennessee) pointed out that according to estimates of the Institute for Energy Analysis (of that particular university) the contribution of new energy sources to the United States' energy balance will not exceed a marginal amount even by the year 2000. In exchange, the "resources" for conservation are proving particularly important: a potential for conservation for the long term exists, evaluated at one-third of current consumption. The effect on world consumption would be particular, bearing in mind that the United States hold more than 30 percent of it. Generally, one may estimate that the western industrialized countries have available a large potential for energy conservation. Howard Ross of the US Department of Energy mentioned a number of important progress recorded in his country in the more efficient utilization of energy and he made statements in connection with the probable reorientations in the new administration's energy policy. Edward Allen, in closing his speech, also made a significant remark: "The international cooperation and solidarity are required, since we all are confronted with common problems."

Prof Patrick Butler of Georgetown University in Washington, D.C., viewed solution to the energy problem from a slightly less usual angle. Proceeding from an approach in "big" terms, he directed his attention to the "small," where one may observe best the way in which man's ingeniousness and hands offer new prospects for progress. The answer (solution) to many of the difficulties confronting us in the energy area, as a result, will not necessarily be found by the big organizations. As much attention as possible and many opportunities for demonstration must be given to individual creativity. In a word, "small is beautiful" and necessary.*

During the discussion particular interest was shown in the legal aspects of the world energy problems. Adrian Nastase of the Institute for Legal Research thus felt that from the viewpoint of international law, what is relevant is the following: 1) exercising national sovereignty over energy resources; 2) international exchanges of energy resources and technologies; 3) the organization of international cooperation to utilize sources and resources not subject to national sovereignty and to develop alternative sources. Energy resources cannot be analyzed in international relations only as goods; they must also be viewed as international values due to the major importance they have gained. Strengthening the idea that an international approach to energy problems should not be sectorial, but global, arguments took place in favor of placing international legal relations in this area on the basis of certain rules for international behavior, a veritable code of conduct. Nicolae Turcu-Seclaman of the Academy of Economic Studies pleaded for substantiating a law of energy, the need for which, both at the national and international level, cannot be doubted by anyone any longer. At the same time, he made the distinction between energy resources which already are goods, things susceptible of being appropriated and able to form the object of international commercial contracts, and energy sources, which through their excellence circumscribe the area of international cooperation.

A structural solution to energy problems can only be ensured if it is conceived as an integral part of the efforts aimed at establishing a new international economic order, stressed Lazar Comanescu of the Ministry of Foreign Affairs. He brought out at the same time the need for all the world states to make efforts to conserve energy, the most available path for avoiding a deepening of the crisis and for finding solutions which correspond to the technological and financial resources available.

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* The title of Schumacher's well-known book (1977).

An important role belongs to regional and world cooperation, which should aid and intensify each state's actions, particularly the developing countries.

In closing the discussion, Prof Gheorghe Preda of the Academy of Economic Studies and president of the organizational committee for the symposium, in bringing out the importance and usefullness of such scientific meetings and thanking the participants for their roundtable speeches, stressed once again importance of effective measures at the national level and of international cooperation in solving the world energy problems.

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CHANGING STATE BUDGET ROLE IN NATIONAL INCOME DISTRIBUTION

Bucharest REVISTA ECONOMICA in Romanian No 39, 25 Sep 81 and No 40, 2 Oct 81

/Article by Dr Constantin Barbacioru: "Considerations Regarding the Role of the State Budget in the Distribution of National Income" (Parts I and II)/

/25 Sep 81 pp 13-14/

/Text/ Through its structure, through the manner of preparation of its different chapters, the state budget reflects the entire economic activity in a year and notes the main trends of the economic phenomena on the domestic and foreign market. These are arguments that cause, in our country, special attention to be devoted to thoroughly substantiating each position in the part of the state budget on incomes and expenditures by taking into consideration the multitude of factors of a political, economic and social order, with a permanent or temporary character, that operate in a certain administrative period. "The budget," Comrade Nicolae Ceausescu pointed out in this regard, "must not be conceived just as a mere reflection of the provisions of the plan but must constitute a graphic image of all the phenomena and processes that occur in the economy, with all their implications."

Correlations Within the State Budget

The reflection of the economic condition of the country, of the factors that influence it in an administrative period of a year, in the state budget is provided in practice through the distribution and redistribution of national income. Through the part on incomes, the state budget offers a picture of the complex activity performed by the units in the sphere of material production, which can fulfill the obligations to the budget only under the conditions of good activity along the line of production, of carrying out the supply processes and so on. Through the part on expenditures, the budget provides the financial resources meant to expand the productive activities, including the building of new facilities in industry, agriculture and other branches, the satisfying of the needs of the nonproductive sphere and so on. In fact, by means of the budget--the secretary general of the party pointed out--we achieve the records and the allocation of all national income in the direction of investments and the development of society, in the direction of the general consumption of the population.

The development and modernization of industry, agriculture and the other branches of material production cause the growth of national income at a high rate, especially the part represented by the value of the product for society, which is the result of the growth of labor productivity. Under these conditions, a steady increase in the incomes and thus the expenditures of the state budget also occurs. The growth of the incomes of the state budget is provided mostly by taking a part of the value of the product for society created in the socialist enterprises. The incomes of the state budget also evolve in relation to the economic potential of the enterprises, to their degree of profitability. Consequently, the growth of the incomes of the state budget also reflects the changes of a qualitative order occurring in the production apparatus of the enterprises, in the organization of production and labor, in the level of training of the workers and, by this means, the growth of the value of the product for society. The data referring to the evolution of national income in comparison with the evolution of the incomes of the state budget are indicative in this regard. Thus, in our country, the volume of national income was 4.91 times higher in 1978 than in 1960 and the volume of the incomes of the state budget was 5.17 times higher. Therefore, the growth of national income also constitutes the support for the fast growth of the incomes of the state budget. In fact, one notes a faster rise in the incomes of the state budget that the growth of national income. This situation reflects the steady growth of national income, especially through the part represented by the value of the product for society. At the same time, the evolution of the incomes of the state budget also brings out a certain view regarding the connections of the enterprises with the state budget, along the line of the taking of incomes and the covering of needs for expanding the activity of the socialist units. So, for example, under the conditions of providing for the expansion of the production of the enterprises through financing from the budget, the incomes are also higher, since the socialist units retain at their disposal to a smaller extent some parts of the value of the product for society. On the other hand, the transition to the self-financing of the enterprises also presupposes some implications regarding the way in which their connections with the state budget are provided--in the sense that the enterprises turn over only net incomes and retain from the profit the funds needed for the expansion of economic and social activities. At the same time, the enterprises no longer receive from the state budget funds for investments meant to expand and modernize production.

In judging the significance of the growth of the incomes of the state budget, it is also necessary to take into account the fact that important measures concerning the improvement of the economic mechanism have been adopted in this period, measures that involve the improvement of the allocation of profits, the transition to the self-financing of the enterprises and so on. The transition to the new economic and financial mechanism in our country is also causing some changes regarding the place and role of the different primary and secondary incomes formed with the help of the state budget. As an instrument for the distribution of national income, the state budget mediates the putting of primary incomes formed in the socialist units at the disposal of the socialist state. In practice, therefore, the state budget is the main instrument by which the state, in its capacity as owner of the means of production, takes a part of the value newly created in its enterprises. The primary incomes of the state are taken into the budget through the deduction for society of a part of the value of the net output, the commodity-circulation tax, the payments from profits, the deduction in various forms of parts of the net income of the agricultural production cooperatives and the artisan and consumer cooperative system, the insurance premiums and so on. Through the part on incomes, the state budget also takes some primary incomes of the population by means of taxes and fees.

Through the part on expenditures, the state budget provides for the redistribution of national income by directing the incomes amassed at the state's disposal toward the satisfying of needs of the national economy, both along the line of creating new production capacities, for modernizing the existing ones, and along the line of financing the activities in the nonproductive sphere. Changes are occurring between the expenditures for financing the national economy, on the one hand, and the expenditures for financing sociocultural actions, the administrative expenditures and the defense expenditures, on the other hand, in the sense that the latter category of expenditures is increasing in relation to the volume and is being diversified in relation to the different needs satisfied by this means.

Thus, the expenditures for financing sociocultural actions are registering a fast increase and are satisfying a wide range of needs of the population along the line of education, culture, health, sports and so on. In addition, the first category of expenditures is also providing for the achievement of expanded reproduction under the conditions in which the enterprises are also forming their own development funds for this purpose. The obligation of the enterprises to restore to society the funds put at their disposal for developing the different productive and sociocultural activities is also causing some changes regarding the volume and the purpose of the expenditures concentrated by means of the state budget in the big category of the expenditures for financing the national economy.

Changes in the Budgetary Mechanisms

There are various orientations and viewpoints with regard to judging the role of the state budget as an instrument for the redistribution of national income. Sometimes, there is an attempt to differentiate financial redistribution from economic redistribution. Reviving this idea, some authors have asserted that the budget does not participate in the process of primary allocation of national income but serves as an instrument for centralization of the primary incomes, which does not reduce at all its considerable role in carrying out expanded reproduction. Consequently, in this opinion, the budget does not participate in primary distribution but centralizes the primary incomes, it has an important role in carrying out expanded reproduction through the expenditures for financing the national economy but achieves only financial and not economic redistribution.

The shortcomings in judging the role of the budget in the redistribution of national income spring from the fact that the primary incomes, including the primary incomes of the state, appear at the place of production of national income, within the state socialist units. They assume this form of primary incomes from the time of the collection of the equivalent value of the goods shipped and the services performed, from the time of their allocation until they reach the state budget, where they are depersonalized and appear as mere budgetary incomes. From this moment, they constitute secondary incomes, which can be used to expand production or to satisfy social needs of the members of society.

However, in our opinion, some specifications are necessary for pointing out in more detail the significance of the state budget as an instrument for the redistribution of national income, namely:

a) First, the state budget, in its entirety, is an instrument for the redistribution of national income, both through the mechanism for forming the incomes and financing the expenditures and through their nature. Consequently, it cannot be conceded that only one part of the incomes or only one part of the expenditures is included in the redistribution of national income and another part is outside this process.

b) As a result, the deduction for society of a part of the value of the net output, the commodity-circulation tax and the shares of profits must be viewed as a process of formation of primary incomes of the state, which, as main owner of the means of production, participates in the primary distribution of national income. Put in the budget, these incomes are depersonalized and, regardless of the expenditures made with them, participate in the redistribution process. In consequence, the expenditures for financing the national economy, even if they have as a source the primary incomes coming from the state socialist sector, also represent a component of the redistribution of national income.

c) In addition, it is necessary to take into account the fact that the state budget is a channel for redistribution of not only the primary incomes but also incomes that result from another redistribution. At the same time, although the budget is the main instrument for redistribution, it is not the only one, and its role and significance in this process can be understood only in close connection with the other channels for redistribution of national income: loans, prices, services, foreign trade and so on.

Our country's experience indicates the special role of the state budget in the process of redistribution of national income. It is closely connected with the exercising by the socialist state of its economic-organizational and cultural-educational function. The growth of the economic role of the socialist state and the evolution of its functions in the current stage are also causing certain changes of a quantitative and qualitative order regarding the redistribution of national income with the help of the budget. From a quantitative viewpoint, the data in the table are very indicative of the role of the budget in the redistribution of national income.

Table

	1950	1960	1970	1975	1978
		In percentages of that in 1960			
National income	100	268.0	599	10-fold	13-fold
State budget (incomes)	100	291.5	668.0	12-fold	15-fold
	In percentages of the total national income				
State budget (incomes)	58.3	59.7	62.9	65.9	64.8

Source: Calculated on the basis of "Anuarul Statistic al RS Romania" [The Statistical Yearbook of the Socialist Republic of Romania] and other official documents.

Up to 1969, when the application of the new regulations on the use of planned and surplus profit, the measures referring to the improvement of the system of financing and crediting the economy and so on was undertaken, a bigger part of national income was redistributed through the state budget. So, for example, in 1969 as compared with 1950, national income was about 5.7 times higher and the incomes of the state budget were 7.4 times higher, with approximately three-fourths of all national income coming to be redistributed. These data bring out some tendencies of excessive centralism appearing in our economy, criticized at the National Conference of the Romanian Communist Party in December 1967 and eliminated through the measures applied later. This situation is convincingly demonstrated to us by the drop in the percentage of the incomes of the state budget in national income from 75.1 percent in 1969 to 62.9 percent in 1970, about 66 percent in 1975 and nearly 65 percent in 1978. Nevertheless, in our opinion, it is not possible to draw the conclusion that the role of the state budget in the process of redistribution of national income will be reduced in the current stage.

The stage of the forging of the multilaterally developed socialist society also presupposes some changes regarding the role of the state budget in the redistribution of national income. In this stage, the elements of a qualitative order, which bring out a strengthening of the democratism of economic life, an increase in the powers of the lower links in decisionmaking, are coming to the forefront to a greater and greater extent. In consequence, the part of national income that will be redistributed through the budget, although it will not be reduced in relation to the previous periods, will nevertheless not increase to the same extent in national income, which will mean its reduction in a relative sense. At the same time, a bigger part of the surplus product created in the productive units will remain at their disposal for expanding their activity.

Regarding the redistribution of national income, two trends are visible in this stage. On the one hand, the growth of the autonomy of the enterprises and the expansion of their powers in the use of planned and surplus profit and other funds needed for their activity are causing a smaller part of national income to enter into the process of redistribution through the state budget. On the other hand, the satisfying of diversified needs of the members of society to a greater and greater extent by means of the state budget is causing a rise in sociocultural expenditures and thus a rise in the part of national income that enters into the redistribution process. Consequently, the manner of formation of the incomes of the state budget and the trends within the budgetary expenditures indicate some qualitative changes in the role of the budget in the redistribution of national income.

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/Text/ The growth of the role of the state budget in the redistribution of national income is caused by many factors, among which the technical, economic, social and political factors, which operate in close connection and with a different intensity from one period to another, have an important role.

In the current stage, scientific and technical progress is causing a considerable rise in labor productivity, which is the decisive factor for growth in national income, mainly in the product for society. This influence is accompanied by some new trends in the value structure of national income, which, on a detailed plane, are concretized in the faster growth of the product for society in relation to the product for oneself. On this basis, some changes are also occurring with regard to the role of the state budget in the redistribution of national income. Thus, while the product for oneself enters to a smaller extent into the process of redistribution by means of the state budget, in exchange, the product for society, in various forms, constitutes the basic source of the incomes of the state budget. Only in this way is it possible to explain the fact that, as a result of the application of the new regulations in the financial and banking field regarding the planning, allocation and payment of profits, the financing of circulating funds, the financing and crediting of investments and so on, the percentage of the two basic elements of the product for society turned over to the budget--the commodity-circulation tax and payments from the profits of the enterprises--also continues to be high: over 56 percent. The statistical data referring to the contribution of the payments from the profits of the state economic organizations and enterprises to the formation of the incomes of the state budget, whose percentage rose from 21.6 percent in 1970 to 43.1 percent in 1978, are also indicative in this regard. At the same time, one notes a reduction of the percentage of the commodity-circulation tax in the total incomes of the state budget from 30.4 percent in 1970 to 11.4 percent in 1978.

The Effects of the Action of Economic Factors

The change in the ratio between different categories of incomes of the state budget formed through the allocation of the product for society created in the socialist organizations and enterprises brings out the fact that the measures adopted in the last decade along the line of improving the management and planning activity have constantly pursued the growth of the autonomy of the enterprises in utilizing their own funds and, in particular, profit and other elements of the product for society. Under these conditions, the state budget gets only about 11.5 percent of its incomes through the commodity-circulation tax, which are registering a steady rise as a result of the increase in the volume of production achieved. At the same time, a diversification of the forms that are assumed by the product for society taken into the state budget is occurring. Thus, in the 1970-1976 period, besides payments from profits and fees and other payments from the socialist units, the regularization tax was also utilized. In the current stage, on the basis of the decisions of the plenum of the RCP Central Committee in March 1978, under the conditions of the action of the new economic and financial mechanism, there has been introduced the deduction for society of a part of the value of the net output by means of which the state socialist units contribute to the formation of the funds needed for the general development of society. The new form of deducting for the state budget a part of the national income created in the state industrial enterprises also provides for the adjustment of the level of profitability according to enterprises, centrals and ministries.

Scientific and technical progress also causes an intensification of the redistribution of national income with the help of the state budget in that, being the main factor for growth in labor productivity, it provides significant premises for changing the ratio between the population employed in the productive sphere and that employed in the nonproductive sphere, in the sense of the growth of activities regarded as nonproductive (services, education, culture and so on). This presupposes the continual growth of the part of national income meant to maintain such activities. The presence of this trend and its amplitude in the current stage are confirmed by the growth of the sociocultural expenditures from the state budget. So, for example, the expenditures for financing sociocultural actions were approximately 50 percent higher in the 1976-1980 5-year period than in the 1970-1975 5-year period. In consequence, the incomes obtained by the population from the social consumption funds in 1980 exceeded by significant amounts those in 1975. In addition, the volume of the expenditures for education, culture and art, health, social security and so on (sociocultural expenditures financed from the state budget) amounted to 71 billion lei in 1980. Consequently, scientific and technical progress is influencing, on many planes, the different economic and sociocultural activities that affect the structure and evolution of the incomes and expenditures of the state budget and, on this basis, is causing an intensification of its role in the redistribution of national income in the current stage.

In the category of the economic factors that influence the process of allocation of national income, the volume and structure of the accumulation have a special importance. The proportion between the development fund and the consumption fund, under the conditions of the growth of national income at a steady rate, is causing the amplification of the process of redistribution of national income with the help of the state budget. So, for example, a high rate of development causes a significant part of national income to be meant for the expansion of production and the formation of the reserve and insurance funds that, in order to reach their destination, also pass through the state budget. At the same time, we note that in the current stage, through the growth of the powers of the enterprises in using their own funds—in particular, profit—in order to expand the productive and sociocultural activities, the part of national income meant for accumulation, which passes through the state budget, is restricted from a quantitative viewpoint. The evolution of the expenditures for financing the national economy from the state budget constitutes proof in this regard: they represented 34.8 billion lei in 1960 and reached 62.1 billion lei in 1965 and 95.5 billion lei in 1969; the fast development of the economy in the 1971-1980 decade also provided for a steady rise in the expenditures from the state budget for financing the national economy from 155.8 billion lei in 1975 to 205.3 billion lei in 1978. The percentage of these expenditures in the total state budget in the 1971-1980 decade varied between 62-69 percent.

The political factor puts its imprint on the distribution and redistribution of national income through the measures of economic policy adopted in a certain period, especially in the financial field. Along this line, in the current stage, the measures regarding the improvement of the economic and financial mechanism occupy an important place. The income and expense budget of the enterprises, the centrals, the sociocultural and administrative institutions, the ministries and other central bodies, the communal, city, municipal and county people's councils and the cooperative and public organizations have a special importance among all these measures, which have important implications regarding the distribution and redistribution of national income. The introduction of the income and expense budget of the productive and sociocultural units constitutes a generalization of our country's experience along the line of utilizing the state budget and the local budget of the territorial-administrative units, an original contribution of our party to the solving of problems of improving the management of the socialist units in the current stage. The income and expense budget of the enterprises and institutions represents a basic instrument in the management of these units, offering to the collective leadership bodies valuable information about the results obtained by the enterprises.

The Income and Expense Budget—an Instrument for the Allocation of the Newly Created Value

Through the content, through the manner of preparation and supervision, the income and expense budget of the enterprises and institutions* plays an extremely important role in the distribution and redistribution of the newly created value, in the providing of financial equilibrium. Within the units in the branches of material production the income and expense budget constitutes an important instrument for the distribution and redistribution of the value newly created in these units. Schematically, the income and expense budget reflects, on the one hand, the receipts from selling the commodity output in the country and through exportation, receipts from performing work and services for third parties and receipts from selling the goods by retail through their own stores and from various other activities and, on the other hand, the expenses connected with the commodity output sold and paid for, expenses for performing work and services for third parties, the cost of the goods sold by retail through their own stores, circulation expenses and those for various other activities, and expenses that are borne directly from the financial results, such as the deduction for society of a part of the value of the net output. The second part of the income and expense budget of the enterprises contains the financial results, of which we mention the commodity-circulation tax, the profit and its allocation.

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* The income and expense budget of the enterprises is prepared in close connection with the economic plan indicators and includes the incomes, expenses and financial results in their activity, the receipts from foreign trade activity, their own funds that are set up at their disposal, bank loans, the payments to the state budget, and other incomes, resources and expenses.

From the general scheme of the income and expense budget of the enterprises in the sphere of material production there is drawn the conclusion that it constitutes an important instrument for the allocation of the newly created value among the productive workers, the enterprises and the socialist state. The receipts from selling the commodity output and from the work done and the services performed also include the primary incomes of the workers, the enterprises and the state. The obtaining of these incomes at the level in the plan thus presupposes the performance of the production and sale of the products in a proper fashion. The role of the income and expense budget of the enterprises in the distribution of national income follows clearly from the very part referring to the expenses and financial results of the enterprises. Thus, the wages of the workers are included in the big group of the expenses connected with the commodity output. The primary incomes of the state are mentioned in the positions: the deduction for society from the value of the net output, the commodity-circulation tax and payments from profits to the budget. The primary incomes of the enterprises are formed from the profit that is allocated for restoring the funds received for investments, the economic development fund, the fund of circulating funds and the fund for housing construction and other investments with a social character. At the same time, the income and expense budget of the enterprises is also an instrument for the redistribution of the newly created value. By this means, the income and expense budget of the enterprises contributes to the formation of the secondary incomes of the population employed in the units in the sphere of material production. In this capacity, the income and expense budget of the enterprises mediates the redistribution of a part of the profit allocated for the formation of funds such as the fund for social actions, the fund for sharing profits with the working people and so on.

The directing of the newly created value in order to satisfy some needs of production and to satisfy the needs of the population is provided by means of the income and expense budget of the enterprises. From this viewpoint, the income and expense budget of the enterprises represents an instrument for allocation by means of which the connection between production and consumption is achieved. As an instrument for the allocation of the newly created value, the income and expense budget of the enterprises has the mission of providing for the financial equilibrium of the socialist units, that is, the equilibrium between receipts and payments, between resources and uses. At the same time, the income and expense budget of the enterprises offers the possibility of a thorough analysis of the volume and structure of the expenses and the adoption of measures for reducing them and correspondingly increasing the profits. In consequence, the income and expense budget of the enterprises is, in particular, an instrument for worker self-management and economic and financial self-administration. In this regard, Comrade Nicolae Ceausescu stated: "On the basis of the principle of economic and financial self-administration, each economic unit and enterprise will have to draw up its own income and expense budget, starting from the necessity of providing, from its own activity, both the financial resources needed and an increase in profitability, in profit. This constitutes an objective necessity for the continual development of society and the raising of the material and spiritual well-being of the whole populace."

The income and expense budget of the enterprise is integrated into the system of the income and expense budgets of the higher echelons: central, ministry and so on. The income and expense budget of the socialist units has as a basis the sole national plan, and in the national economy as a whose these budgets are correlated with the other financial plans, such as the state budget, the loan plans and the centralized financial plan. In the current stage, in our country, at the level of the different organizational links of the national economy and in the country as a whole, the distribution and redistribution of national income and the growth of the role of the instruments utilized in the process of allocation of the newly created value, in the management of economic and social life, are provided through the system of the income and expense budgets.

Knowledge of the main trends of the process of distribution and redistribution of national income and thorough study of the role of the budget in this process are of special theoretical and practical importance, constituting the starting point for the different measures regarding the improvement of the financial and loan factors and the price system, the expansion of services and the raising of the level of sociocultural service for the population, and so on.

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ROMANIA

GREATER EFFORTS NECESSARY TO REDUCE PRODUCTION COSTS

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[Article by Dr Gh. I. Sica]

[Text] In the general framework of concentrating concerns throughout the economy on emphasizing the intensive factors of development, the reduction of production costs and material expenses per unit of product plays a basic role, being intended to provid an incentive for growth in the net income of society, directing of the material and labor resources saved in this way into various areas in order to have superior satisfaction of the rational social consumer demand.

That is why the reduction in production costs and material expenses must be given more attention, both in the immediate future as well as the more distant future, through intensifying the creative efforts and organizational efforts, efforts with a view to raising the level of utilization of raw materials and energy, increasing the degree of recovery of reusable resources, giving a strict size, scientifically substantiated, to consumer standards, reducing consumption in the process of the design and building of the products, increasing the cadres' qualifications and so forth. Just how important this activity is result from the fact that a 1-percent reduction in total costs in the national industry in 1980 represented 5.7 billion lei, while at the 1985 level a 1-percent reduction will represent 7.7 billion lei.

Current Dimensions of the Actions To Reduce Manufacturing Expenses

An overall analysis brings out that in the first year of the current five-year plan the action to save on social labor in general and reduce material costs and expenses in particular was carried out under better conditions, with many sectors of activity, industrial centrals and enterprises obtaining superior results both in rise as well as compared with the plan. Thus, the enterprises belonging to the Ministry of Machine Construction Industry, the Ministry of Chemical Industry and the Ministry of Agriculture and Food Industry fulfilled their planned tasks during this period as a whole, while additional savings over the plan were obtained with regard to the materials. The supplementary savings for the national industry total 1.105 billion lei for the period which has passed this year.

Reductions in total and material costs have been recorded on the rise for a large range of products, with positive results for the competitiveness of the particular products, for their profitability. As an example, the evolution in reduction of costs for certain products in the 1977-1980 period, when the same production price level was acting (put back to 1 January 1977) (see Table 1).

Table 1: Evolution of Costs of Certain Products in the 1977-1980 Period
(Indicators in the base of 1977=100)

Product	Unit of Measure	1978	1979	1980
Passenger cars for the main lines	pieces	-9.1	-13.0	-18.5
Vertical lathes	pieces	+5.5	+ 2.6	- 3.6
Artificial leather	tons	+17.3	-3.0	- 5.9
Cotton-fiber and cotton-type fabric	1,000 lei production good	+ 1.8	-4.8	- 5.8
Synthetic ammoniac	tons	-14.8	- 2.2	-21.7
Carbon black	tons	-12.2	- 6.1	- 4.8
Radial tires	pieces	- 4.8	- 7.1	- 7.3

As we see from the figures presented, sometimes large reductions were recorded in the economy compared with the 1977 level of costs per product; whereas, for example, for artificial leather, where the capacity newly entered into operation should have reached technical-economic parameters, it affected costs in 1978, but it led to a reduction in the next years and for the other products presented in the table the activity of reducing costs was carried out in superior results toward the final years of the five-year plan.

The new production and delivery prices brought up to date, introduced on 1 January 1981, created appropriate conditions for applying the new economic and financial mechanism in all branches of the economy, but particularly in the extraction industry, where, due to the specific exploitation conditions, the production and delivery prices had become totally inappropriate. Also, it was determined that where concern with reducing production costs and material expenses was shown at the appropriate level, the results obtained were and are commensurate with them.

Mainly the efforts made have been based on fulfilling the volume and physical structure of the production good in conformity with the plan provisions, fulfilling the tasks to increase the utilization of raw materials and materials, fulfilling the goals fixed in the area of increasing labor productivity, drawing on certain modern and original technical and technological solutions to a greater extent in the activity to reduce costs. At the same time, however, it should be stressed that in some enterprises and centrals the activity to reduce costs has not risen to the level of demands and possibilities, with the results, too, being inappropriate. Thus, in the Bucharest enterprise for automation elements, at Electroceramica in Turda, at the Pitesti Automobile Enterprise, the Piatra Neamt Mechanical Enterprise, the Resita machine construction enterprise, the Risnov devices enterprises, Unirea in Cluj-Napoca, the Galati naval job site, the planned production costs were exceeded in the first half of this year, which burdened the state's net income and affected the processes for saving on social labor.

The factors which led to the appearance and preservation of a gap between the plan forecasts and achievements obtained in the period mentioned were due to the existence of a number of causes, among which the following are at the head of the list: failing to have appropriate follow-up on carrying out the programs of measures, the lack of systematic costs analyses, reduced involvement of the technical sectors in the activity to reduce labor consumption per unit of product.

We are in a stage where the problems of reducing production costs cannot be treated only in the "traditional ways" and by the chief accountant's record-keeping sectors;

in our opinion, the new technical and technological solutions must make a greater contribution than right now. And this is because currently many failures of fulfillment of the planned costs also are due to the fact that some technical leadership cadres in the enterprises, in treating the specific problems, continually are sending the problem to be "solved" by the record-keeping sectors, that is, the head acccuntants, despite the fact that 95 percent of the enterprises' expenses are being decided by the technical and production sector. And there is more. In some situations, the goals of the technical plan in all their forecasts have not been ganically linked with the activity of reducing production costs, with there actually being many situations when an answer is not insistently sought to the question of "what volume of savings have you brought by fulfilling the goals of the technical plan," a situation also encountered in some big units, for example, at the Galati Iron and Steel Combine, the Brasov Tractor Plant, the Drobeta-Tirnu Severin Train Car Plant and so forth.

In this context, we feel that of the volume of savings planned for a plant, the greatest portion specifically as a service task must belong to the technical and technological sectors. The activity of reducing material costs and expenses per unit of product in an economic unit cannot be carried out in "general" or through total calculations made in the head accountant's sectors, but specifically on the basis of programs of measures institutionalized as documents of the single national plan even in 1974. In practice one still sees situations where the programs of measures to reduce material costs and expenses are worked out formally and they do not make the junction with the other programs for increasing labor productivity, reducing consumption standards and improving product quality and the contribution of the technical plan is not evaluated, intermediate terms and specific responsibilities are not established, while seeking to carry out these measures--a particularly important problem--has not risen to the level of demands. These situations are met in some units of the chemical industry, construction materials industry and machine construction industry.

For that reason, systematic reduction in costs continues to be an area which must be treated with greater responsibility by the responsible factors in the enterprises and centrals, with the leadership through costs being a major commandment of the entire stage of this five-year plan. A critical analysis of the structure of production costs by elements of expenses and articles of calculation, an exhaustive study of the internal reserves in the sections and shops, blocking all channels for loss and waste and, in particular, technical ingeniousness must be the support for working out measures to reduce material costs and expenses per unit of product, while raising the decision making in the technical-economic processes to the level of demands of the concept of economic efficiency are the guarantee for carrying out the measures in the program.

Goals and Actions for Obtaining Superior Results

Taking into account the complex and sustained development of material production in light of the tasks included in the annual and current five-year plan and the broad program of investments which systematically promotes the newest achievements of technical progress in the national economy and the need for saving on social labor in all ways in the period remaining this year and in the future, all units in the economy have major tasks with regard to mobilizing the reserves with a view to reducing material exses even more emphatically. At the level of the entire five-year plan currently, a volume of savings of around 260 billion lei is to be obtained in this way, of which more than 200 billion are in the national industry. Actually, this means that in the national industry the total costs per 1,000 lei production good are to be reduced 8.2 percent in 1985 compared with 1980, while material costs are to be reduced 6.3 percent. A basic part of this effort belongs to the processing industry as well as the intermediate branches--the chemical industry, the iron and steel industry and so forth (see Table 2).

Table 2: Reduction of Total and Material Production Costs During This Five-Year Plan

Units Belonging to:	1985/1980 (percent) Reduction in costs per 1,000 lei production good — Total	Material
Ministry of Metallurgical Industry	7.0	5.9
The machineconstruction industry	14.5	12.4
Ministry of Chemical Industry	10.2	8.4
Ministry of Forestry Economy and Construction Materials	9.2	6.4
Ministry of Light Industry	11.1	11.2

Of the multitude of factors whose intensified action is needed for this purpose, the following must be kept in mind on a priority basis: continually raising the degree of utilization of raw materials, materials and energy-bearers through the superior processing of metal, wood, plastics and other raw materials and basic materials, as well as the strict use of fuels and electric energy; considerably increasing the recovery degree for raw materials and reusable materials in order to cover the production domestic consumption to as great an extent as possible and to save the country's natural resources and reduce imports; substantially increase the production and net income which are to be obtained per 1,000 lei fixed assets by the intensive utilization of machinery, equipment and installations and complete loading of production areas and increase in the coefficient of exchanges; strengthening the savings program in all the production units by broadening and improving the system of standards and expenses standards as well as eliminating any kinds of losses by enterprises and products and by eliminating the shortcomings still being demonstrated in the activity of some economic units.

The material support for fulfilling the forecasts, along with carrying out the fixed investment program on schedule for the 1981-1985 period, must be amplification of the units' own efforts in order to raise the degree of utilization of raw materials and materials (above 30 percent in industry) and obtaining nearly 84 percent of the rise in national income by increasing social labor productivity and the average annual growth rate of live labor productivity by 7 percent in industry, 5.4 percent in construction-assembly and so forth, intensive factors which in turn determine the reduction in the level of costs per unit of product.

Of course, these macroeconomic goals may be fulfilled only under conditions where the particular tasks in each unit, section and shop and on each job are parcelled out and followed up on appropriately, while the activity for carrying them out takes place at the level of requirements demanded by the current stage. In this framework, it is necessary in each economic unit to make a critical, careful study of the way in which the factors which determine the level of costs for 1981 have taken action, to select those with a specific action in 1982 and work out specific programs of measures in light of these specific factors. In particular, we are referring to the various technical and technological solutions undertaken in preceding years which did not demonstrate an immediate economic effects butwhich are contributing to saving on social labor. The thousands of capacities newly entered into operation in the last years of the preceding five-year plan must reach the technical-economic parameters as a whole, in the shortest possible time, and must give the anticipated results and from here we have the need for the programs of measures in these new capacities in the area of reducing costs to take into consideration the solutions which may lead to achieving the anticipated contribution in the technical documents, which have been at the basis of approval of the particular investments.

Working out measures to continue reducing costs, the ones with long-range effects should not be neglected, either, bearing in mind the scope of the tasks confronting us during this five-year plan. In this regard we need a mobilization of technical and technological solutions on broader bases, proceeding from the design and quality up to optimization of the manufacturing batches , internal transport, which in some plants is entailing costs with large amounts for promoting a strict savings program. The junction between the technical and economic sectors must be achieved better than in the past so that these important tasks can be brought to fulfillment through joint efforts. In this framework, the strengthening of discipline of costs we feel is also a basic requirement. In particular we are referring to working out calculations of costs by product as sensibly as possible and adoption of an appropriate system for seeking to carry out the measures included in the programs and to laying them out by sections and shops.

Approaching these tasks with increased responsibility and substantially increasing the concern in all enterprises to reduce production costs and, in particular, material costs are necessary conditions for achieving this year's production and that of the five-year plan under conditions of higher efficiency.

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GENUINE AGRICULTURAL REVOLUTION REQUIRES REALISTIC OUTLOOK

Iasi CRONICA in Romanian 18 Sep 81 p 7

[Article by Constantin Dropu]

[Text] Implementation of a new revolution in agriculture, substantial increase in vegetable and animal production, the full use of the land fund with maximum rationale and of the technical-material base, broad application of the achievements of biology, genetics and, in general, modern science and technology, rise in labor productivity and the economic efficiency in agriculture—all these mean draining the remainders of the old mentality and of the "new" interpretations which basically preserve the old cliches of the way in which this branch of decisive importance of the Romanian economy was viewed.

1. Speaking of agriculture's role and place in the national economy, it seems we have become used to referring to the fact that it represents merely a reservoir of agricultural-food products for the population, raw materials for light and food industry, reserves for export, workers for other branches of activity, sources of capital for accumulation and a sales market for various industrial products. I think this view suffers from narrowness and in any case from a certain simplifying of things and for that reason it must be corrected. A full and thorough understanding of agriculture's place in the national economy and, on a more general level, in the economy of today's world is only possible by bearing in mind that agriculture in a way is the alma mater of human civilization. It is the runway from which man took off on this great adventure and to which he continually returns. John Bernal feels that agriculture established the absolutely new relations between man and nature, that man, by practicing agriculture, actually began to master living nature through a knowledge of its laws of reproduction and thus to obtain a much greater independence from the exterior environment. He associates with agriculture the process of formation of the craftsmen of the field and of the house, formation and extending of the concept of cause and effect, which was to become the basis for a rational science, the process of formation of the rural culture, the village and later the city and so forth. But Edouard Bonnefous feels that although the progress of industrial techniques and technologies deeply changed the relationship between man and nature, making man feel less subject to the nearby natural environment, the human being still remains a tributary of the chlorophyl which captures solar energy and supplies it with oxygen and, strictly dependent on the renewal of the resources and, above all, on primary productivity, whose first stage is represented by the photosynthesis whose sum of possibilities we far from know. The living matter of the biosphere is what ensures, through the plants with chlorophyl, this basic mechanism for changing solar energy into chemical energy and which, throughout the centuries, has led to establishment of a living and vertile layer biogeosphere.

As the French scholar says, "There is no doubt that the earth is the most precious capital which man has at his disposal to satisfy his needs." And, far from being stable and inert, the earth is a complex, continually changing medium. Planting crops, thus, agriculture understood as a work of the ground, speeds up this change in the sense of an enriching if it is practiced rationally or in the sense of a weakening if the methods are brutal or if their only purpose is to obtain immediate and maximum output. In this last meaning, Bonnefous speaks of the bad consequences for man of what he calls aggressive agriculture. In a period in which the problems of environmental protection are being posed more and more sharply, the practicing of a rational agriculture plays a role of primary importance in ensuring at least protection of the earth against destruction and pollution with substances which endanger man's health and harms the biological resources and life of the ground's organisms or hinders the various natural uses of the earth.

2. The idea of a new revolution in agriculture, I feel, should also be reflected in the level of scientific research and the front of all the sciences which are connected with agriculture. With regard to economic thought, it should be cause, as was the procedure with unilization of the advanced ideas of the "industrialists" of the past, for us to proceed with our pioneers who gave out ideas, thoughts, analytical elements and even solutions--also valid today--with regard to Romanian agriculture and to the determinants for its progress. For example, let us recall the studies of Gheorghe Ionescu-Sisesti, this true Nicolae Iorga of our country's agrarian economy, or those of Marin Chiritescu-Arva. These two brilliant scientists from the first half of our century were among the most profound experts in the status of Romanian agriculture during a very broad period. Their works should be investigated better and utilized more and integrated in a place of honor in the heritage of our economic agrarian thought.

Under oftentimes the mostunfavorable conditions, Gh. Ionescu-Sisesti tirelessly militated for more than four decades in order to bring order to the entire activity upon which the fate of agriculture depended. He supported the need for the cooperation of all factors in ensuring full success in the action to straighten agriculture out. Seven decades ago, in the work entitled "Agrarian Policy With Special Regard to Romania," he wrote: "In order to achieve the greatest success in agriculture and thus the most favorable profitability, we need the equal cooperation of all factors. I dwell on this equality because too often it is forgotten in agricultural practice and agrarian policy that a single unfavorable factor unfavorably affects the entire operation. Just as the resulting vegetation in crop nutrition depends on the element found in a minimum quantity (The Law of the Minimum discovered by Leibig), so, too, profitability in the organ of agricultural operation depends on the most unfavorable factor. For example, if all the elements of an operation are improved but the leadership is poor, the result will be negative and if the operation goes very well but there is no sale, and so forth." He draws attention to the danger which can result in the situation where the bureaucratic apparatus of an privileged state organization becomes very hard to handle, a circumstance due to which some measures, programs and laws initiated could remain unimplemented. "Scattered programs at each moment are like those magician's wands which give the people an illusion behind which a reality is not hidden. A law is a working plan for a ministry, for a government, for a society. But it is not the work itself; the work itself begins after the laws are voted. We should not have an illusion, as some politicians have illusions, that if a law has been voted on, then the country's happiness begins. A law voted upon is like a plan for a house. The plan may be very nice but it is not the house itself; much work and perseverance are needed to build a house." In an atmosphere which is not always favorable, it was difficult for the scientists of the past--and there was no lack of them--to undertake practical actions intended to provide an impetus for agricultural progress, although they were convinced of the need and possibility for them. This conviction made Gh. Ionescu-Sisesti say that "The economic laws often are of a sharp nature which are destructive for the laws of nature, which, however, the superior human awareness corrects through the laws of individual or social ethics." Precisely in order to promote an agrarian policy which takes into account economic laws and life's realities, he came out in favor of attracting into the representative organs of agriculture those who actually work in production, the agricultural workers who bring from practical life the sharp sense of realities, of responsibilities, of the real needs and aspirations, those who will seek within the organs the most appropriate solutions.

In turn, Marin Chiritescu-Arva said that agriculture as production is the result of an entire constellation of factors, that correcting it is possible by implementing a triple rationalization: geographic, economic and technical, stressing that modern agriculture is presented as a union between science, technology and production, within which one may not intervene with unilateral measures. He came out firmly against those economists and politicians who were in their concepts "either the echo of reminiscences of bourgeois thought by the romantic way in which they view rural life and by the mystical virtues they give to creative individualism, or they are the captives of classic theoretical formulas in the area of the economy which they view as a goal which must be fulfilled, instead of using them as a means in achieving the forms of life imposed by time."

Research into the way in which the problems of Romanian agriculture were approached by progressive economic thinking in a period throughout which these problems, even if their figures and view through which they were being viewed suffered changes, were in the forefrontof social-political life of the country, I think, is of special importance even beyond the borders of the historical stage in which they were circumscribed. Because the cooperativization of agriculture in the process of building socialism has created favorable conditions for implementing the advanced ideas of those who in the past were concerned with the fate of agriculture and toward which the bourgeois-landowner regime most times demonstrated an incredible obtuseness. Despite the passing of time, more than a few of these ideas have preserved their unchanged current nature, able to serve us at a time like this, when our thoughts sharply turn to the contribution requested by the party to place all the activity in agriculture under the banner of the needs for a qualitative leap by consolidating what has been achieved until now and by opening toward what is new, toward creation and progress in all directions without preconceived ideas.

3. In pondering the states of affairs in agriculture, we cannot help but ask why, after more than three decades since initiation of the process of placing the Romanian village on socialist bases, the average per hectare outputs as well as the other parameters of efficiency still are far behind those of the developed countries, despite the indisputable progress we have recorded along the line of increasing vegetable and animal production. Do these countries really havebetter land, more favorable climate, more favorable geographic placement? Of course not. The explanation lies in the tenacity with which technical knowledge is applied, in the strictness with which all agricultural work is done,in a spirit of initiative, order and discipline,which characterizes the activity of each agricultural farm. All these depend on the factor of man, on the quality of this factor and, if that is how things stand, the new revolution in agriculture perhaps should start with a broad rethinking and flexible solution for all the problems concerning the most important factor in agriculture--man. Gheorghe Ionescu-Sisesti said: "We must start with the factor of man, without whom all the sacrifices for material improvements will remain without value. Human energy must be enlivened,

the work of the routine agricultural worker must be brightened up, and everything must be done in order to increase faith and to strengthen the spirit of solidarity. Only then will the material resources forecast in our working programs produce the results we wish."

I would not like to be criticized for writing "poetry," but I cannot help but say that when we speak of agriculture, of work in agriculture, we must take into account the specific nature of this activity, we must bear in mind that work in the agricultural sphere still coincides in many regards with the sphere of peasant life itself. Let us not forget that the peasant and the land always have been two brothers urged on, it seems, by the same fate, the peasant with his sorrows and happinesses, along with the earth, with its winters and springs. I do not think that a basic change in the states of affairs of our agriculture can be obtained without a radical improvement in the system of material incentives for the workers of the fields and all those working in agriculture. Much has been said and written about material incentives for the peasants in Romania in the last 30 years. It seems we have reached a certain satiety in connection with this problem so that today it even seems hard for us to approach it anymore. Undoubtedly, certain improvements have been recorded but, overall, the problem still continues to be an open one. It would be at least imprudent for us to think that we have arrived at finding those forms of incentives which fully stimulate the peasants' entire capacity for work. Otherwise, they would not show so much indifference in many places to working the land and they would not prove to be so apathetic even until the fall and the harvest, in which their work throughout an entire year is incorporated.

The importance of material incentives in raising agricultural production has been understood for a long time. Someone said, and not without foundation, that the creative energy of which the millions of peasants are capable and which could be placed into movement with the help of levers and material incentives could be compared with the energy of an atom. It is easy to understand that simulating and placing such an energy could raise the entire process of agricultural development onto a qualitatively higher level. And it is not only a matter of stimulating those working in the big crops, in vegetable production, but even of those working in zootechnics, in the industrial combines, where the quantity and quality of work done may be determined more precisely and measured at once. For example, an attendant at a poultry combine working with 25,000 chickens, sometimes working more than eight house a day in an impure air, does not always receive a salary appropriate for the volume of work and her working conditions, although her labor productivity in some cases is double that of the average productivity for our industry as a whole.

A true material incentive should proceed from a determination of the effort of each producer himself, whether it is a matter of an agriculture unit, farm or brigade or a matter of a single worker, machine operator or cooperative member peasant. The problem is not at all a simple one, but solution of it means clarifying in advance the many aspects raised in production and practical economic activity each day. Perhaps the agricultural units should be given incentives not only for fulfilling the forecasts of the production plans but also for working out the best plans based on utilizing as many internal reserves and local possibilities as possible. In this way, if we express it in this way, the practices of handling the plan figures according to the circumstances, not always justifiable, would be eliminated. We shall be in agreement that realism and consistency of the plan indicators lie not so much in the strictness of correlating their figures but more importantly in their basic foundation, in adopting the measures needed to fulfill them. But this does not mean that the plan indicators can be given their dimensions in just any way. The working out of a totally realistic plan is the primary condition and, at the same time, the basic condition for fulfillment of it. Speaking on a more general level, ensuring a good leadership, organization and planning is the problem of problems for our socialist agriculture. Actually by this I am not saying something new. We know very well that throughout the years of building the new society in Romania measures have been taken successively to improve the organization of leadership and planning of agriculture as of the entire national economy.

4. The application of the new economic-financial mechanism in agriculture also is closely connected with the question of improving the system of leadership and planning. In this regard it should be seen whether and to what extent the production plans of the agricultural units are more realistic now, more solidly substantiated and whether and to what extent the plan proposals coming from below, from the production farms, have been taken into consideration by the higher organs. The practice of many units is not able to indicate a transition to a new quality in planning activity. We feel that in the matter of planning the relationship between the agricultural unit on one hand and the county and central organs on the other even now are not operating appropriately. Of course, in the activity of working out the production plan for any agricultural unit, the unit's tendency to draw up a "comfortable" plan always has been met and still is being met now, a plan it can fulfill slowly, without headaches, and the tendency of the higher organs to make the plan over-large with so-called mobilizing provisions. The name of "mobilizing" is not, however, anything more than a euphemism hiding the unrealistic nature of the plan provisions, the tendency of the organs, particularly the central planning organs, to raise the growth rates of vegetable and animal production at the price of supersoliciting the efforts of the agricultural units or, perhaps, their fear that the latter fulfills the production plans too easily. However, whatever the cause is, the lack of realism in some plan provisions imposed from the center not only makes the plan unfulfillable even from the start but, by failing to take into account the proposals coming from the agricultural units as well as their specific conditions, the independence given the enterprises in carrying out their production and economic activity and their self-leadership are seriously affected. It seems that here we see an attitude criticized some time ago by our party's leadership, that is, the central decision-making organs' hanging on to routine methods, old style of work, excessive centralization, imposing viewpoints from a position hard to attack by the higher forum, whose directives must be carried out as being, should we say, more well thought out, better reflecting the general interests of the national economy, the state, society.

Recently, in connection with the new economic-financial mechanism applied in the agricultural units, the theoretician and practical economists in Romania have made a more thorough study of various of its aspects. The feeling enjoys unanimous opinion that the measures adopted by the party have created favorable conditions, an organizational, institutional and legislative framework which permits more efficient activity to be carried out. Despite this, it is necessary to recognize that, unfortunately, some disagreements still persist between the way in which the new economic-financial mechanism was conceived and the way in which its main requirements are being applied in practice. For example, let us take the difficult problem of prices. Of course, the 12-percent rise in prices for delivery, contracting and acquisition for agricultural products--decided by the party leadership--is a powerful stimulus given to the producers with a view to increasing productivity and profitability of the agricultural units. And, yet, there still are many matters to be clarified and adjusted in the problem of prices for agricultural products. They should be profitable for the producers and equitable for the consumers. Both the level and rise in costs as well as the effects propagated by the change in prices must be kept in mind in establishing prices for various products in order to ensure normal circulation of goods. We know that the mutual ties between various branches and subbranches of the national economy determine a reciprocal dependence between the prices of the goods being transferred from one branch to another. In establishing and, in particular, in moving prices, all this is not always kept in mind. For example, in the case of a poultry combine, its products even today are being sold at the same prices as five years ago. But in these five years the fodder for poultry has become more expensive (from 1.80 lei/kg to 2.70 lei/kg), the cost of electric energy has risen from .24 lei/kW to .34 lei/kW and thermal energy also has risen from 101 lei to 161 lei/gcal, drugs also have become 25 percent more expensive, transport expenses have doubled and tripled as a result of establishing the new enterprise for transportation in agriculture, personnel's salaries also have risen 30 percent. And, yet, the price at which the poultry combines sell their goods has remained the same. To be better understood, I shall state that I am not pleading for a rise in the prices of poultry products. An understanding of the negative implications of the tendency shown to raise prices is available to anyone. Our society must minimize the unfavorable effects of such a tendency. The problem I am raising is that of a better correlation of prices so that they permit carrying out the economic activity of the agricultural units under normal conditions on the basis of the new economic-financial mechanism, self-management and self-leadership.

5. A new revolution in agriculture has no way to avoid a problem continually confronting those working in the agricultural units, that is, the problem of the roads, the access roads, as well as that of the means of transport. We know what the situation was from this viewpoint in the past. The efforts and achievements recorded are known. But it is just as true that we still have a lot to do to set up and modernize the county and commune roads and those between the villages and fields, between farms and so forth. If I am not wrong, it was felt that annually we are losing more than 10 percent, if not more, due to failure to transport the harvest on time. This means 2 million tons for 20 million tons of grains. Why should we continue to lose them? Perhaps the answer will be that the financial effort could not be supported, at least for the time being. The length of our county and commune roads is 58,785 km, of which approximately 3,200 km have been modernized, while 17,000 km have slight asphalt covering. Anually around 1,200 km of county and commune roads are set up in this way, which means that we would need around 30-40 years from now on to finish the modernization of these roads, without even speaking of the village roads and those from the villages to the fields, which do not figure in anyone's accounting. Is this not rather a lot? Why do we not make the problem of modernizing the county, commune and village roads a national problem? Why do we not establish national youth worksites and worksites for the entire population which would include the entire network of arteries in order to bring some villages and agriculture out of the mud, to give an additional note of civilization and real progress?! Because progress in agriculture cannot be conceived of without roads.

The problem of setting up the roads in the villages naturally is correlated with the broader problem of systematization of agricultural territory and the rural localities. Unfortunately, the network of operating roads on which massive quantities of products travel and which directly affect the street network of the rural localities does not always figure in the documents on systematization of the rural localities and agricultural territory. In connection with the organization of agricultural territory, we need to undertake firm measures to utilize nonproduction land, to restrict certain categories of usage, particularly those which do not directly serve agricultural production and which, through their method of placement and size, reduce or hamper agricultural production, such as parallel roads, paths, mistakenly placed or useless paths, too many operating roads, uncultivated zones of protection, if they are not against health standards, green areas without a production road, shrubbery without economic value and many other things.

The technical, biological, organizational, economic and social dimensions of the new revolution in agriculture actually are extremely numerous and with many implications. It seems as if we are seeking endlessly to innovate in this broad and frenetic arrangement. The person who comes up with a new idea is covered with praise. But there is something easier and more useful than even the best new idea and that is for us to recognize the national value of simple things done well, for us to organize and make the positive experience of the leading socialist agricultural units and the wisdom of the hardworking peasants in the furthest villages become generalized, becoming the chief aid for all our agricultural work. As Comrade Nicolae Ceausescu recently stressed, "The agrarian revolution is not carried out with words." Because what is more difficult than theorezing about a new revolution is implementing it, with the revolution requiring giant and persevering efforts of organization and putting into motion the hidden energies existing in the world of the Romanian village.

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STATUS, OUTLOOK FOR COAL CONSUMPTION, PRODUCTION

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[Article by Momcilo Simonovic, doctor of engineering sciences and full professor at the School of Mining and Geology of Belgrade University; submitted 5 March 1981]

[Text] The article surveys the tendencies and experience in production and use of coal in Yugoslavia as well as its place and the role which it has had and can have in the future development of the Yugoslav fuel and power industry. The recent energy crisis has affected and speeded up development of coal production in our country, as it has elsewhere, and has strengthened the orientation of many consumers, above all the electric power industry, toward this source of raw materials. That is why the growth rates of coal production in the period up to 1985 have been projected rather high, and in the period after 1985 still higher. Our production capabilities with respect to use of coal reserves are greater than the amounts projected in the plan, and if the new gasification processes are economically acceptable, it is more than certain that the production and use of coal will be speeded up to a greater extent.

Introduction

Our country's economic development, which has been quite intensive over the last decade, has made it necessary for the consumption of primary energy to increase about twofold over that same period, and at the same time the structure of consumption has been changing rapidly to the advantage of secondary forms of energy, above all electric power and petroleum derivatives. Just 10 years ago, somewhere around 1969, domestic coal was dominant with a share of about 44.5 percent in consumption of primary energy. The other 55.5 percent consisted of the following: imported coking coal 8 percent, crude petroleum and natural gas 40.5 percent, and hydroelectric power 7 percent. In 1979, when petroleum and natural gas had a share of 57.4 percent in total energy consumption, hydroelectric power 6.6 percent, and imported coking coal and coke 5.5 percent, domestic coal covered the remaining 30.5 percent. However, it would be a mistake to think that coal's share has also dropped in absolute volume. On the contrary, it has increased--not much, to be sure--but still at an average annual rate of 3.5 percent, and over the last 5 years that rate has exceeded 6 percent. A very large jump has occurred over the last 10 years in consumption of domestic coals for production of secondary energy (primarily thermal electric power). This consumption nearly tripled over the period from 1969 to 1979 in physical volume, while in other sectors it has grown very little, stayed at the same level or decreased.

Production of primary energy in Yugoslavia over that same period, i.e., over the period from 1969 to 1973, increased about 1.5-fold: about 1.3-fold for solid fuels, about 1.7-fold for liquid and gaseous fuels, and slightly over 1.8-fold for hydroelectric power. Coal has a share of 55.5 percent in domestic production of primary energy in 1979, crude petroleum and natural gas a share of 31.9 percent, and hydroelectric power 12.6 percent.

It is evident from the figures given that the share of domestic coal has also been dropping rapidly in total production of primary energy, though coal production has recorded a certain growth.

Neither in the past nor today has domestic coal production been able to meet the demands of consumers with respect to types and quality. For example, domestic types of bituminous or better coal do not even meet the demands of coking plants in their quality, and the other types of coal have serious shortcomings with respect to consumer requirements.

Though production of domestic coal has grown relatively little over the last 10 years, the makeup of this production has undergone essential changes over that period in the direction of an increased volume of production of lignite and of a larger volume of coal produced by strip-mining.

The requirements of consumption have had the decisive--and one can say also the only--influence on these trends in coal production in our country. That is, over the period under review coal has been altogether or partially abandoned by the large sectors that were previously its principal consumers: transportation and a sizable number of branches of the industrial sector, and then in large part by public and residential consumption. Coal consumption in thermal electric plants has by contrast recorded a large growth year after year.

Coal Reserves

As is generally known, our country possesses a relatively modest primary energy potential. Coal makes up the largest part of this energy potential (about 84 percent), and then come crude petroleum and natural gas (about 2.5 percent), and the rest is made up of hydroelectric power, nuclear fuels and oil shale.

Total reserves of all types of coal in Yugoslavia are estimated at about 205,000 PJ [expansion unknown]. Lignite has the leading place in these reserves (82.2 percent), and then come brown coal (16.4 percent) and finally a token amount of bituminous or better coal with only 1.4 percent.

Our deposits of bituminous or better coal are very complicated in their tectonics. The coal seams are not very thick, run on a steep slant, and they lie at depths from 400 to 600 meters. The conditions for working these seams are difficult and complicated, and the possibility for use of machinery is limited.

The average minimum thermal value of our bituminous or better coals ranges about 24,800 kilojoules per kilogram. The ash content of this coal is considerably, as is that of total sulfur, and the use of this type of coal is therefore limited.

Brown coal deposits are also among those which are tectonically very complex with quite pronounced slopes of the coal seams, moderate pressures, relatively small influx of ground water and occurrences of CH_4 which in some places may even be very sizable.

The thickness of the coal seams varies and ranges from 1 to a maximum of 40 meters, but most frequently in the range from 1.5 to 10 meters. The depth at which coal of this type is located usually ranges between 200 and 500 meters. The conditions for exploitation, except for deposits suitable for strip-mining, are complicated and even very problematical for certain deposits, and the opportunity for using complete mechanization is restricted, in certain deposits it is partly restricted, but in a number of cases the possibility in terms of percentage is higher. About 20 percent of the total reserves of our brown coal can be strip-mined on favorable economic terms.

Our brown coals characteristically have a high ash content (above 20 percent in most cases) and a relatively high total sulfur content. Average minimum thermal value ranges about 17,500 kilojoules per kilogram.

Deposits of Yugoslav lignite belong with respect to geological age to the lower strata of the Pliocene or the youngest Miocene. The tectonic structure of most of these deposits is very simple, and it is more complicated only in certain smaller deposits or minor portions of the larger lignite basins. The depth of the lignite seams ranges from a few meters all the way to 100 meters in certain basins. The seams have slight or moderate slopes, in most cases between 3° and 5°, up to a maximum of 15° in rare cases. The influx of groundwater is moderate for most of the deposits, except in two or three cases, and there are some without influx of groundwater.

The conditions for working our lignite reserves can be described as very favorable with respect to the ratio of overburden to coal and with respect to the concentration of reserves. These two factors can be regarded as the principal indicators in assessing the suitability and economics of working any bed.

About 10 percent of the total lignite reserves in the country can be mined with an overburden coefficient greater than [sic] or equal to $K_r = 1.0$, another 40 percent K_r between 1.0 and 3.0, and the other 50 percent with an overburden coefficient $K_r = 3.0$ and $K_r = 6.0$.

Table 1. Distribution of Total Coal Consumption Among Principal Consumers (physical volume)

Principal Consumer	1965	1970	1975	1979	1980
In thousands of tons					
Electric power industry	8,154	13,108	21,865	32,204	33,500
Other industry	10,337	7,183	6,508	2,507	--
Other consumption	11,466	8,131	7,164	7,403	--
Distribution in percentage					
Electric power industry	27	46	62	76	72
Other industry	35	25	18	6	--
Other consumption	38	29	20	18	--

Source: "Godisnjak o radu rudnika uglja" [Yearbook on Coal Mine Operation], 1965, 1970, 1975 and 1979, Mining Institute, Belgrade.

Though it is difficult to determine the value of the overburden coefficient beyond which it is not economical to work these reserves by the open-pit method, on the basis of experience in many countries of the world we can still assume that this can be done successfully at the present time up to a coefficient which does not exceed a value between 8 and 10. Basically this depends on the mining-geological conditions of each bed whose working is marginal, and then on the quality of the coal material, access, the type of overburden and its physical-mechanical characteristics, the coal's suitability for economical use, the country's level of economic development, the method of exploitation used, the level of mechanization of the open-pit operation and on many other conditions which are difficult to specify since as a rule they are specific to each individual bed.

Among us it is felt that on the basis of the analyses which we have made those lignite beds, or, better put, those distinct coalfields, whose overburden coefficient does not exceed a value between 4.0 and 6.0 or is close to those values can be regarded as suitable for stripping and can meet most of the conditions.

Viewed in more precise terms, it is felt today that the economic boundary for open-pit rather than underground exploitation of any coal bed can be defined by the isolines representing the numerical values of the marginal overburden coefficient. That is, in this case all coal reserves could be strip-mined if they met the following condition:

$K_{gr} = (T_{pj} - T_{pu})/T_{jal}$

in which:

T_{pj}--costs of production per ton of useful substance by underground exploitation;

T_{pu}--costs of production per ton of useful substance in strip-mining, not including stripping in the production cost;
T_{jal}--costs of production per cubic meter of overburden.

The condition of profitability would be:

$$T_{pu} + K_{gl} \cdot T_{jal} \leq T_{pj}$$

On the basis of this functional relationship and the very conscientious estimates which have been made on the basis of mining-geological indicators and other indicators necessary to this purpose, over 80 percent of total lignite reserves can be strip-mined very economically (according to today's economic conditions), it being possible to use highly productive present-day machinery, to achieve a high concentration of operations and to use full automation of all processes in the technological chain of surface mining.

The marked concentration of lignite reserves at several localities makes the conditions favorable for opening up large strip-mining fields for high daily and annual outputs, which in turn facilitates full concentration and use of continuously operating machines with high unit capacities both in mining itself and also in transport, piling, preparation and processing.

The quality of the lignite of which our reserves consist corresponds to its geological age and the conditions of deposition. Their basic peculiarity is the high moisture content, which ranges between 36 percent and 54 percent. A major portion of the reserves contains between 44 and 50 percent moisture. Also typical is the relatively high ash content, which [illegible] we ignore the extreme cases, ranges between 7 and 16 percent. The lignite of most beds is close to the lower figure mentioned for ash content. Sulfur content ranges between 0.2 percent and a maximum of 1.2 percent, which at the same time is an extreme value with respect to sulfur content and has been recorded at a minor number of deposits.

Because of the relatively large differences in content of ballast materials (ash and moisture) in the lignites of the various beds, the minimum heating value also varies within wide limits, ranging from a minimal 6,280 kilojoules per kilogram to a maximum average value of 11,300 kilojoules per kilogram. A major portion of the reserves has an average lower heat value between 7,100 and 8,400 kilojoules per kilogram.

Production

In physical volume coal production in 1979 amounted to 42.1 million tons, and it consisted of the following: bituminous or better coal about $0.4 \cdot 10^6$ tons, brown coal $9.4 \cdot 10^6$ tons and lignite $32.3 \cdot 10^6$ tons. A 10.5-percent increase in coal production was recorded in 1980, which is the largest growth so far achieved over the last 20 years (47.0 million tons of coal were mined).

Over the past decade there has been a steady trend toward a decline in the production of bituminous or better coal and a somewhat less pronounced decline in the production of brown coal, and a quite intensive increase in the production of lignite. This has also had an effect on the average minimum thermal value achieved per unit mined, so that this value has dropped over 20 percent in the period since 1969.

At the same time there has been an increase in the share of coal produced from strip mines, so that in 1979 their share was about 65 percent of total coal production (this was about 33 percent for brown coal and about 75 percent for lignite). There is no doubt that this trend has been greatly influenced by the demands of consumers above all and then by the suitability of the reserves and beds for more economical exploitation. To illustrate, in 1969 the industrial sector consumed about 69 percent of total production of domestic coal, the railroads 8 percent and other consumption, including general consumption, about 23 percent. In 1979 the industrial sector consumed 87 percent of total output, the railroads about 0.6 percent, and other consumption about 12.4 percent.

The number of underground mine openings used for bringing out coal dropped from 70 to 57 over those 10 years, and the number of strip mines increased over that same period from 12 to 22. Average annual coal production per underground mine opening increased only about 6 percent, while it increased slightly more than 12 percent over the last 10 years per strip mine. This shows very poor progress and points up the fact that average annual output is still far below European and world standards both for the average underground opening and also for the average strip mine, and they are at the same time far below our own desires and aspirations. We can console ourselves with the fact that a major portion of the surface mines are in the phase of developing production and that this average will probably increase several times over, probably within a quite brief period of time.

Table 2. Coal Production (physical volume), in 10^3 tons

	1965	1970	1975	1979	1980
Total	29,957	28,422	35,537	42,114	47,002
Bituminous or better coal	1,169	643	598	434	388
Brown coal	10,509	8,989	9,430	9,351	9,665
Lignite	18,279	18,790	25,509	32,329	36,949

Source: "Statisticki godisnjak Jugoslavije" [Statistical Yearbook of Yugoslavia] for 1975 and 1980.

In 1979 the Yugoslav coal industry employed a work force of about 56,135, about 72 percent in underground mines and the other 28 percent at open pits. The composition of the work force with respect to skill has been improving year after year, so that the distribution of the work force today is as follows: about 41 percent skilled workers, 10 percent highly skilled, 6 percent engineers and technicians, 21 percent office workers and 22 percent unskilled workers.

Labor productivity in underground coal mining in 1979 ranged from 1 ton per worker per day, depending on the mines and types of coal, to slightly over 5 tons per worker per day, and was more than 40 percent higher than productivity achieved in 1969. Labor productivity at strip mines, calculated in terms of coal, varies greatly and ranges from 25 tons per worker per day to 60 tons per worker per day.

Several studies have been done recently to forecast energy consumption in the future. Usually these studies have covered the period up to the year 2000, but some have gone even to the year 2020. Hypotheses concerning the growth of the gross social product have mainly served as the basis for the long-range projection of growth in total energy consumption. Most of the studies done have shown that total energy consumption in Yugoslavia in the year 2000 will be more than triple the consumption in 1979, that is, that it will increase at an average annual rate of about 5.7 percent. The alternative long-range energy balances over the period up to the year 2000 have been compiled in view of the necessary trends necessitated by the growth of consumption with respect to selection of types of energy and the need to use particular types of energy in particular branches of the fuel and power industry or branches of the industrial sector, and on the other hand in view of the availability of domestic energy resources and the possibility of developing them.

In the light of what we have said above it is felt that coal production in the period up to the year 2000 should increase at an average annual rate of about 6.9 percent and reach a level of about 220 million tons in that year. The estimates put coal's share in total energy consumption at about 35 percent in that same year.

Virtually the entire growth of coal production up to the year 2000 is planned to come from lignite production, specifically from large open-cut mines which would be developed in the large lignite basins during that period. By far the largest portion of coal production will be used for production of thermal electric power, but a portion will also be used to produce synthetic gas.

In the more immediate future, i.e., up to 1985, domestic coal production is projected to reach a level of about 82 million tons per year and coal's share in consumption of primary energy in the country would be about 33 percent in that year. It is projected that thermal electric power plants will consume about 62 million tons per year, or 76 percent of total domestic coal production. In that year strip-mining would account for about 73 percent of the total output of domestic coal.

On the basis of our practical experience to date, three basic conditions need to be met for engineering-technological and economic optimality in the use of lignite:

1. The lignite needs to be used within the so-called economic transportation radius. In other words, the distance the lignite is carried from the strip mine to the place of use must not be greater than allowed by the so-called economically reasonable or acceptable shipping costs for the heat the lignite effectively contains as a fuel. On the basis of many analyses and practical experience up to this point, that distance (assuming up-to-date transportation equipment for this purpose and this raw material) cannot exceed a limit of about 40 km for our lignites.

2. It must be possible at the strip mine to achieve the economically necessary (in terms of mining geology and other conditions of the working environment) concentration of production, the use of high-capacity machinery and analogous technology in strip-mining, assuming the depth at which the productive seams lie ensures economically acceptable overburden coefficients over the entire period of exploitation of the mine.

3. There must be a large, that is, large-scale, consumer of the lignite produced which can ensure in its own technology the maximum possible continuity and smallest fluctuations in consumption during the year.

It is self-evident that condition 1 should, must and can be fully met in all cases, while this is not and cannot always be the case with conditions 2 and 3. That is, a more or less gradual development of consumption will always accompany the demand for energy, and it is to this that development of production capacities must adapt to the greatest possible degree, and there must be an analogous adaptation on the part of the schedule of capital investments in those production capacities and in general on the part of the overall economics of production in all phases of development to the point of complete or optimum closure of the production-consumption circle for a particular project or for a particular group of consumers. This cannot be achieved in all cases, but every approximation, even the slightest, toward alignment is economically favorable and expedient.

Use of Domestic Coal

Since our coals represent the country's principal energy base, they have been comprehensively studied with respect to possible use. This especially applies to the lignites. Some of the facilities for use or processing of lignite have been built on an industrial scale on the basis of those studies.

a) Domestic Coal as a Fuel in General and Residential Consumption

Coal which has been previously sorted and in certain cases also washed is delivered as a fuel for general and residential consumption; the size varies, but it is mainly lump coal containing less ash than the finer grades, and it therefore has a somewhat higher minimum heating value. Depending on the quality of the coal in the bed and its treatment in the cleaning operation, the heating value ranges between 27,000 kilojoules per kilogram and 28,000 kilojoules per kilogram for bituminous or better coal, between 18,000 and 19,000 kilojoules per kilogram for brown coal and between 10,000 and 15,000 kilojoules per kilogram for lignite.

In recent years less and less coal has been delivered for general and residential consumption, but the amounts are still sizable in the case of brown coal. For example, 10 years ago (in 1969) general and residential consumption accounted for about 3 percent of total production of bituminous or better coal, 13 percent of total production of brown coal and 29 percent of total lignite production, which makes a share of 27 percent in total production of all types of coal in Yugoslavia. In 1979 the statistical service recorded no consumption of bituminous or better coal for general and residential consumption. On the other hand 24 percent of total production of brown coal went for this purpose, along with about 8 percent of total production of lignite, which makes 12.4 percent of total production of all types of coal in Yugoslavia. The level of total coal deliveries for general and residential consumption in 1969 was about 5.9 million tons, while in 1979 it was about 4.6 million tons, i.e., there was a drop of about 22 percent.

At Yugoslav coal mines there are now in operation 32 plants for dry coal separation, 7 plants for wet coal separation and 9 plants for coal separation in heavy liquids. The total capacity of all these plants is about 11,179 tons per hour.

As is evident from the figures given, coal consumption in general and residential consumption has been dropping steadily, though in our country the problem of substituting for petroleum and electric power in this sector of consumption is more than necessary, as it is in many countries of the world and indeed in all the European countries. The reader will recall that general and residential consumption in our country accounts for about 33 percent of total consumption of primary energy, about 50 percent of which comes from petroleum, that is, heating oils, and about 24 percent from electric power. It is certain that domestic coal could not replace the entire consumption of petroleum even in the ideal case, and still less could it replace all the consumption of electric power, but even the slightest effort toward substitution in this sector can bring the country large benefits. Many countries in the world have already made efforts to introduce coal in the consumption of rural households and small-size urban settlements, where its use as a fuel does not cause major problems with respect to environmental protection. Might this not also be done in our case?

We are convinced that in our case as well a definite policy aimed in this direction could bring exceptional results.

b) Domestic Coal as a Fuel for Thermal Electric Power Plants and for Heating Plants

Thermal electric power plants, or, more accurately, producers of thermal electric power, have for years been the largest coal consumers in Yugoslavia. In 1969 they consumed about 41 percent of the total production of domestic coal in that year, and their share in 1979 was all of 76 percent, distributed as follows: about 79 percent of the total production of bituminous or better coal, 57 percent of the production of brown coal and about 82 percent of the production of lignite. In physical terms this consumption more than tripled between 1969 and 1979.

The growth of production of thermal electric power in Yugoslavia is characterized by the construction of large new thermal electric plants at the large coal basins (lignite basins above all) in the immediate vicinity of open-cut mines. The large lignite reserves and their economical production have made it possible, first, to further expand the existing thermal electric plants and then also to build or plan the construction of new ones. Conditions have thus been created for forming strong centers for very economical production of electric power from reliable domestic energy resources consisting of coal.

This orientation has come about for several reasons, economic reasons first of all, the most important of which are these:

a) construction of thermal electric power plants in the immediate vicinity of large open-cut coal mines eliminates or appreciably diminishes a large item in the costs of producing electric power consisting of fuel shipping costs;

b) specific capital investments (dinars per kilowatt) are appreciably less for turbogenerator units with higher installed capacity than for units with a lower capacity. Our experience has demonstrated that they are 10 percent lower for 300-megawatt units than for units whose installed capacity is 200 megawatts and more than 20 percent lower when the investments are made in 600-megawatt units;

c) construction of a sizable number of units of the same capacity at the same site thus brings about a reduction in specific capital investments thanks to fuller and more economical use, above all of the facilities they have in common. According to the data from our own experience, the drop in specific capital investments is as follows for a thermal electric power plant with one, two or four units of the same capacity:

Number of units	1	2	4
Specific capital investments, %	100	90	87

The total installed capacity of all power plants in Yugoslavia was 13,320 megawatts in 1979, of which thermal electric power plants accounted for 7,410 megawatts, or 56 percent. Of the total installed capacity of thermal electric power plants 78 percent is in thermal power plants and heating plants burning coal. More new thermal power plants and heating plants burning coal are planned for construction by 1985, and their installed capacity will total about 5,008 megawatts, of which 3,968 megawatts will be coal-fired, and they will go on line one after the other up to 1985. According to the plan for development of the Yugoslav electric power industry, total installed capacity of thermal electric power plants should be 12,783 megawatts in 1985, and the installed capacity of thermal electric power plants and heating plants using coal as a fuel would reach a level of about 9,484 megawatts in that same year.

c) Drying of Lignite

In the fifties very extensive and serious studies began on the possibility, conditions and economics of drying lignite so as to increase the economic shipping radius of lignite and in order to meet needs for better quality coal on a national scale and in order to obtain a fuel with a lower moisture and ash content and a correspondingly higher value.

The Fleissner process was chosen as the most suitable of the many processes tested for drying our lignites. When the lignite is dried by this process, that is, when a portion of the moisture is removed from the lump of lignite, the lump does not disintegrate after drying, i.e., it retains its lump form and has the necessary solidity so that this kind of fuel can compete in its characteristics and heating value with other similar natural lump fuels.

In the Fleissner process the lignite is dried in batches in autoclaves whose size ranges from 30 to 40 cubic meters and which are linked in a group containing 2 or 4 ovens. Drying is done with saturated or superheated steam under pressures between 25 and 30 bars and takes between 160 and 200 minutes.

The elimination of water from coal by this method is a physicochemical process that has to do with the colloidal structure of the coal. The process has not yet been fully elucidated in spite of the many studies directed toward that goal. It has been established, however, that CO_2, H_2S and many other chemical products are given off in the drying process aside from the water. During the drying process the texture of the coal and the chemical composition of the dried coal also undergo change. Carbon content in the coal increases about 20 percent, which indicates a process of carbonization, and at the same time the relationship and types of capillaries in the coal substance undergo change, and the dried lignite takes on hydrophobic characteristics.

In our country today there are three lignite drying plants in operation using the Fleissner process; they have a total annual output of about 1.9 million tons of dried coal. The first plant was put into operation in 1956 at the Kolubara REIK [Mining, Power and Industrial Combine]. In the first years of production there were many difficulties and shortcomings in the installation and in the technology of the drying process, but by and large they have been effectively eliminated, though in its characteristics the dried coal does not always meet the quality envisaged in the design. It is significant that the lump lignite that is dried in this installation is first washed in heavy liquid. The lignite prepared in this way has an average content on entering the drier of about 56 percent moisture and 7 percent ash, with a minimum heating value of about 7,000 kilojoules per kilogram, while dried it has between 28 and 30 percent moisture, about 10 percent ash and about 14,700 to 15,500 kilojoules per kilogram.

The second and then also the third similar plants were built and put into operation in the basin of the Kosovo RHMK [Mining, Chemical and Metallurgical Combine] a few years later. The annual output of these two plants is about 2 x 0.6 = 1.2 million tons of dried coal annually. The undried lump coal entering has a moisture content of about 48 percent and a heating value of about 8,000 kilojoules per kilogram; after drying it has 10 percent moisture and a heating value of about 16,000 kilojoules per kilogram.

Though the Fleissner process of drying lignite has up to now proven to be the best of the known processes for obtaining lump lignite of a particular firmness and quality, it also has large defects from the thermal and technological standpoints, the most important of which are the following:

i. this is a batch rather than a continuous process;

ii. extensive preparation of the lignite is necessary, and then supplemental drying and separation after drying;

iii. there is a need for biological and mechanical purification of the water which is discharged upon completion of the drying process;

iv. it is very difficult or almost impossible to find a use for the "dry dust" (the grade of dry lignite with a particle size of 0-3 mm);

v. the specific investments are very high, which means a high share of the cost of capital in the production cost, and so on.

Mostly because of these defects it is well known that this process has not come to be extensively applied anywhere in the world, and it is probable that this will not be the case even with us in the future, and it is expected that the existing plants will only possibly be added to to improve the technology and round out the economics of the operation.

d) Gasification of Lignite Under Pressure in Gas Generators

In a desire to supply gas to its industry beyond the available amounts of natural gas, Yugoslavia, like other countries, has built an installation in the Kosovo basin for gasification of lignite using the Lurgi system, which basically comprises the first phase of the intended construction at this facility. The gasification plant consists of a number of installations, specifically: a gasification installation consisting of six generators (diameter 3.6 meters, capacity 20,600 cubic meters of gas per hour) with appropriate installations for feeding the coal and removing the slag or ash, and then an installation for condensation, rectifying column, air separation, removal of tar, intermediate oil and phenol, and treatment of the effluent. To this complex of installations we also need to add a necessary installation or heating plant to produce the steam, to separate the dry and moist lignite, to dry the lignite, and also certain smaller installations classified as auxiliary equipment.

Dried granulated lignite with particle size from 6 to 65 mm whose moisture content does not exceed 22 to 26 percent, is gasified at a pressure of 26 bars with oxygen and steam (mixed 1:8 to 1:9). The generator yields the raw gas whose minimum heating value is about 12,000 kilojoules per cubic meter; it is led away for condensation and purification, so that at the outlet one obtains what is referred to as "distance gas," whose lower heating value is about 15,500 to 16,000 kilojoules per cubic meter. A portion of the "distance gas" is processed into synthesis gas, hydrogen being separated from it as the principal component for production of ammonia, and the remainder of this gas (quite rich in methane) is returned to the "distance gas," mixed with it, thereby increasing its lower heating value to about 17,500 kilojoules per cubic meter.

The by-products of gasification (tar, intermediate oils, raw gasoline, raw phenol, aqueous ammonia, and so on) are marketed for consumption within other plants of the combine or on the market outside the combine.

The steel mill in Skopje, certain industrial enterprises, cement plants, and so on, are consumers of the "distance gas."

The gasification plant at the Kosovo Combine is not yet running at full capacity, and it has gone through and is still going through many difficulties, mainly technological, but other kinds as well. It is difficult to say anything at all definite about the economic efficiency of its production until real experience has been gained in full utilization of the installed capacities.

However, it is certain even now that this method of lignite gasification has many shortcomings in the technological process, and then it also necessitates a preparation of the raw material--the coal--for gasification that is very expensive not only in the capital investment, but also in the operating costs. For example:

i. before the generator is charged, the lignite must first be dried, and then the dried lignite sorted into a particle size from 6 to 65 mm, and the dried particles must have a certain solidity;

ii. it is very difficult to find a use for the remainder of the dried coal with particle size from 0 to 6 mm in view of the rather high ash content in this grade of coal, and so on;

iii. the use of oxygen and steam in the gasification process represents a high production cost and also an expensive capital investment;

iv. the gasification plant is basically a complex of several complete installations (raw lignite separation, lignite drying plant, sorting unit for the dried lignite, heating plant, an oxygen plant, gas purification, effluent treatment, and so on) which require large investments, and if economic criteria are to be met these installations can be fitted into acceptable specific limits only if their annual capacities are high, i.e., if the annual capacity for gasification is sufficiently high and if the complex is used continuously throughout the year at its maximum rated capacity. This is, of course, difficult to achieve because of the diversity of the consumers and their requirements.

In the coming period, then, like many other countries with a similar energy base, we will be faced with finding solutions as to how to produce synthetic gas from lignite in the economically most acceptable manner.

Our interest in major improvements in present methods of lignite gasification or in new methods is obvious, and we will therefore be following events in the progress of research in this field with great interest.

Our interest in the possibilities for economical use of lignite has not been confined exclusively to the processes described above. Lignites have been studied in detail from almost all our basins, first of all in the laboratory and then some of them on a semi-industrial or industrial scale, in order to obtain briquettes of appropriate quality. However, though rather good or satisfactory results were obtained in certain cases, it still has not been possible to get a satisfactory picture of the economic efficiency of these plants under our conditions.

It is probable that a different picture might be obtained today concerning the economics of this process, since the demand for this kind of fuel is very great. This is, of course, something to work on.

Much research has also been done to study the possibility of economical production of semicoke from lignite and briquettes in turn from the semicoke. This research is still going on, though the results so far are not very promising.

We can say in conclusion of this section that today the most effective use of our lignites and then of our other coals as well is as a fuel in generating electric power, and in the near future we probably can add to this gasification if new processes more economically acceptable than those used today should be developed.

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